American Fruit Grower Magazine for October

Volume XLIX — OCTOBER, 1929 — Number 10

A New Service for Our Readers

AN ADDITIONAL service for the readers of AMERICAN FRUIT GROWER MAGAZINE has been assured in the addition to this magazine of a Radio Department.

In this issue appear the Radio Announcements, which will be made a permanent feature. With the wealth of valuable material now being broadcast by the United States Department of Agriculture, the commercial fruit grower is in an unfavorable position economically if he fails to avail himself to the utmost of this mass of useful information.

The Fruit and Vegetable Market Reports and Reviews are of especial value to the grower. The usefulness of this service cannot be over-estimated. Its purposes are ably described in the introduction to "Crop and Market News Radio Broadcasting Schedules," issued by the United States Department of Agriculture, from which the following quotations are taken:

"A few of the reasons behind this extensive service of broadcasting crop and market reports are:

"1. Radio gets the reports to those who want it while the information still has market value.

"2. Radio puts the information into the hands of the farmer in his home, no matter how isolated he may be.

"3. Radio has placed producers on an even trading basis with buyers.

"Under the supervision of a disinterested, unbiased agency of the Federal Government, the reports have gained general respect as to dependability and accuracy.

"One of the outstanding results of the widespread interest in market news developed largely by radio has been the increased interest of the analytical reviews and summaries which are now regular weekly features of the different commodity market news services.

"That the producers, shippers, dealers and the transportation agencies may be better informed regarding supply, demand and prices, the Federal market news service and the co-operating radio stations are rendering a service impossible of duplication by private agencies and not equalled by any governmental agency in any other country."

Many of the agricultural colleges are broadcasting timely information of inestimable value to the growers in the localities they serve. For the most part these radio talks are in charge of extension workers accustomed to direct personal contact with the growers.

In the department, "THROUGH THE 'MIKE' TO THE FRUIT GROWER," will appear, from month to month, the programs received that are of especial value to the commercial grower of fruits and vegetables. In this connection it may be mentioned that it is often necessary for programs to be altered after they have been published. Especially is this true in the case where programs have been made up several weeks or even months ahead.

We therefore beg the indulgence of our readers, should programs in this or future issues be changed.

As additional information is received concerning radio broadcasting programs of value to our readers, it will be added to the directory of broadcasting stations in future issues of this magazine.

HARRY W. WALKER, EDITOR

CHESTER G. CAMPBELL, Managing Editor

RALSTON R. HANNAS — Fruit Farm Poultry
HARLEY F. WILSON — Fruit Farm Beekeeping
MARY LEE ADAMS — The Orchard Home
HAZEL BURSELL — The Fruit Grower's Wife

EDITORIAL ADVISORY BOARD

W. L. FLOYD, Professor of Horticulture, College of Agriculture, Gainesville, Fla.

N. E. HANSEN, Department of Horticulture, South Dakota State College of Agriculture and Mechanical Arts, Brookings, S. D.

C. D. MATTHEWS, Consulting Horticulturist, Raleigh, N. C.

W. C. O'KANE, Department of Entomology, University of New Hampshire, Durham, N. H.

A. J. OLNEY, Professor of Horticulture, University of Kentucky, Lexington, Ky.

E. P. SANDSTEN, Horticulturist, Colorado Agricultural Experiment Station, Fort Collins, Colo.

O. F. E. WINBERG, President, Gulf Coast Citrus Exchange, Silverhill, Ala.

In This Issue

A BASIC TROUBLE OF A GREAT APPLE REGION. By F. J. Schneiderhan 5
PAPER PROVES SATISFACTORY FOR ORCHARD MULCH. By G. F. Richards 6
FALL BULBS FOR SPRING BLOOM. By Hazel Bursell 7
THE PEACH INDUSTRY OF GEORGIA. By George H. Firor 8
PEARS ON WASTE LAND IN OKLAHOMA. By Bryan Smith 8
"APPLE DAY" AT IOWA STATE COLLEGE. By T. J. Maney 9
FEDERATED SECURES REHEARING IN CALIFORNIA 10
EFFICIENT, LOW-COST STORAGE. By W. W. Magill 13
LUTHER BURBANK'S WORK WITH THE APPLE. By John T. Bregger 16
"CRIMPS" DISEASE OF STRAWBERRIES. By R. E. Richards 16
Support of Fruit Fly Appropriation Urged 9
California Fruits Enter the Orient 10
Find Cultivated Orchards Pay 12
Ten-Day Quarantine for Fruit Fly Carriers 12
Ocean Freight Rate Reduction Opens New Markets for Grapes 12
Rees Completes Pear Survey 12
Tons of Peach Pits 12
"Hort" Meetings 12
A Famous Orange Tree 16
Merger of Food Machinery Makers 16
"United Growers" Approved by Farm Board 17
New York "G. L. F." Gets $50,000 17
Sow Lawn Grasses in the Fall 21

DEPARTMENTS

EDITORIAL AND CONTENTS 3
THE MARKET REVIEW 11
THROUGH THE "MIKE" TO THE FRUIT GROWER 14
FRUIT FARM POULTRY 18
CLASSIFIED ADVERTISING 20
INDEX TO ADVERTISEMENTS 20
WHAT THE CAMERA SEES 22

QUALITY PREFERRED

WHEN YOU drive into town for the farm or household supplies, how do you go about it?

The chances are that your mind is pretty well made up—not only as to general description of the products you want, but as to the brand names.

You'll mention familiar merchandise easily, naturally. Names of advertised goods.

You prefer advertised goods because you know you can depend on them.

You save hours of shopping time in a year because you don't need to investigate nor examine the things you want.

You don't buy on suspicion—you buy with confidence—because you know goods that are consistently advertised *must* maintain consistent quality.

It is ruinous for a manufacturer to turn the spotlight of advertising on an inferior product. And advertisers know it. Hence advertising is a guarantee of dependability.

Read the advertisements regularly. When you go to buy—*be informed!*

You can be sure the quality is "as represented" when you buy advertised goods.

MAGAZINES, INC., PUBLISHERS
CHARLES W. PRICE, Chairman Board of Directors.
C. A. TUPPER, President and Treasurer.
HARRY W. WALKER, Vice-President and General Manager.
JAMES E. MONTGOMERY, Vice-President-Asst. to President.
E. G. K. MEISTER, Vice-President, Manager Cleveland.
A. C. BAMBERGER, Secretary.

American Fruit Grower Magazine

Established in 1880 — Title Registered in U. S. Patent Office
53 WEST JACKSON BLVD., CHICAGO, ILL.
SUBSCRIPTION RATES: One Year 50c, Three Years $1.00, Five Years $1.50. FOREIGN: $1.00 Per Year
Entered as second class matter Oct. 17, 1917, at Post Office at Chicago, Ill., under Act of March 3, 1879.
Published Monthly on the First

THE NATIONAL FRUIT MAGAZINE OF AMERICA

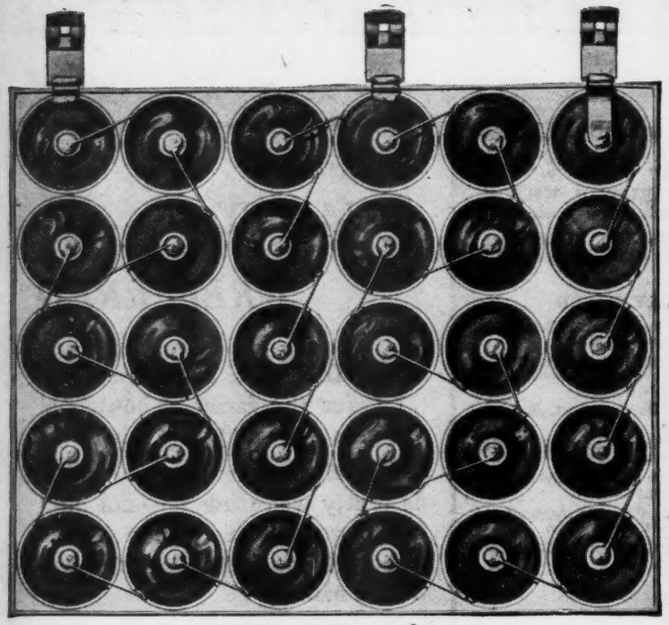
BRANCH OFFICES and Representatives

NEW YORK CITY, Suite 601, 250 Park Ave. ROGER FISON, Eastern Manager.

CHICAGO, 1119 Advertising Building. J. C. BILLINGSLEA.

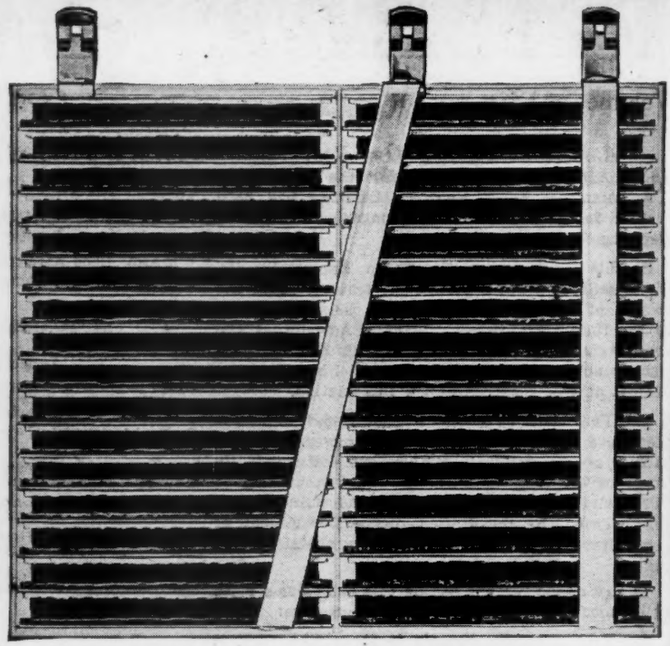
CLEVELAND, Engineers Bank Bldg. E. G. K. MEISTER, Manager.

Copyrighted 1929



Cylindrical Cell Construction

Diagram illustrating the construction of a cylindrical cell "B" battery. Two solderings per cell, or 60 in all, and 29 fine wires—89 chances for trouble. Note waste spaces between cells.



Eveready Layerbilt Construction

Diagram illustrating the simplicity of the Eveready Layerbilt construction. Only two broad metal bands and only five soldered connections. No waste spaces. It's all battery. Layerbilt construction is an exclusive Eveready feature. Only Eveready makes Layerbilt Batteries.

HERE IS «

THE DIFFERENCE

IN "B" BATTERIES «

Here are the facts about "B" batteries assembled of separate, individual cells:

29 delicate, fine wires are necessary to make connections within the battery;

60 solderings are required, making in all 89 places where trouble can come.

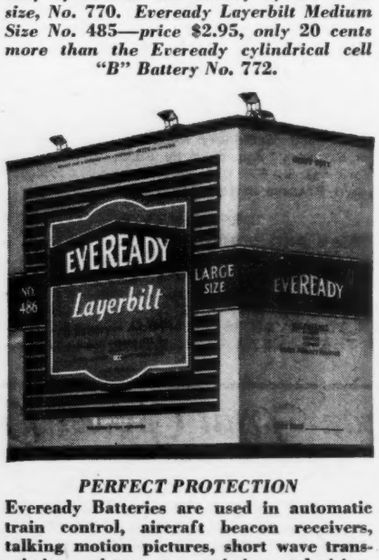
These things are true of any such battery, whether the cells are cylindrical, square, hexagonal or any other shape.

Here are the facts about Eveready Layerbilts:

Only two broad connecting bands are needed, each 3/8 inch wide;
Only five solderings are required;
All other connections are made automatically, for the *flat* cells are not independent but *inter*dependent; the flat construction packs more active materials in the battery case and so you get longer life.

Now you can see why Eveready Layerbilts last so long, are so convenient, reliable, economical. They are the best of all Evereadys, the most popular of all. It will well repay you to insist on these superior batteries. Look for the name "Layerbilt" on the label.

This is the **LARGE SIZE** *Eveready Layerbilt No. 486 for heavy duty service—price $4.25, only 25 cents more than the Eveready cylindrical cell battery of the same size, No. 770. Eveready Layerbilt Medium Size No. 485—price $2.95, only 20 cents more than the Eveready cylindrical cell "B" Battery No. 772.*



PERFECT PROTECTION

Eveready Batteries are used in automatic train control, aircraft beacon receivers, talking motion pictures, short wave transmission, picture transmission, television, where life and property must be protected, and performance safeguarded by the utmost dependability of all apparatus.

NATIONAL CARBON CO., INC.
General Offices: **New York, N. Y.**
Branches: **Chicago, Kansas City, New York, N. Y., San Francisco**

UCC

Unit of Union Carbide and Carbon Corporation

TUESDAY NIGHT IS EVEREADY HOUR NIGHT *East of the Rockies*—9 P. M. Eastern Standard time, through WEAF and associated N. B. C.

NEW EVEREADY RADIO RECEIVERS, A. C. AND BATTERY OPERATED, NOW ON SALE

A Basic Trouble of a Great Apple Region

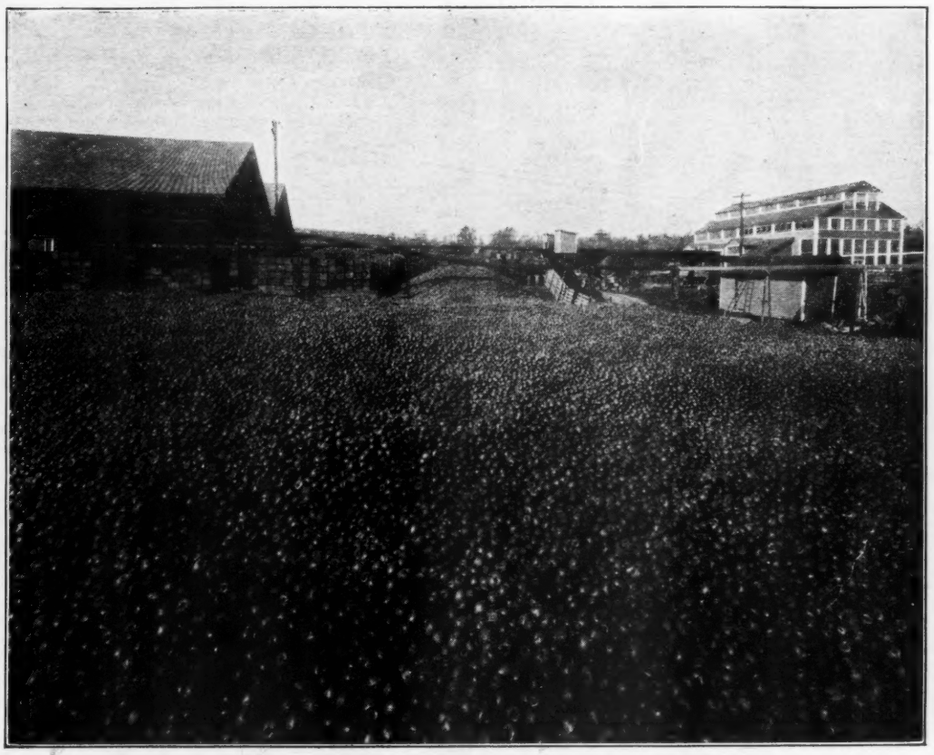
In the Shenandoah-Cumberland Region the Loss to the Apple Crop from Preventable Causes Is Staggering in Volume. Seventy Per Cent of This Loss, Amounting to Twenty-Nine Per Cent of the Entire Crop, Could Be Prevented by Better Cultural and Spraying Methods.

By F. J. SCHNEIDERHAN

West Virginia Experiment Station

JUST previous to the national election last November, the farmer was the chief object of much touching sympathy dispensed in a timely manner by politicians. Following the election, we heard considerable about diminishing returns, unearned increments, non-exportable surplus, and debentures, terms dear to the heart of economists and mellifluous in their mouths. Congress said "No" to debentures and thus the first act in the drama of saving the American farmer was closed. There has been a lot of ink spilled in this farmer rescue work and men who have long been close students of agriculture wonder where the politicians and so-called experts are leading this parade of farm relief.

The great diversity of opinion brought out in the debates about the subject leads to the conclusion that the farmer is a sick man but that all of his ills have not as yet been accurately diagnosed. We hear that the farmer is either going to be "it" or "out" and if the former, the question is how.



The cost of careless methods. This pile, covering more than an acre and about six feet deep, contains more than two million pounds of cull apples. The bins in the background contain another million pounds, and the total amount runs this by-products factory only four days at Winchester, Va.

A Commercial Apple Region

Such are the thoughts running in the minds of many individuals who, like the writer, have daily contacts with farmers. In this particular instance this contact is with a highly specialized branch of agriculture, namely, apple growing in the Cumberland-Shenendoah district.

The apple business in this district experienced hard times just after the war. Frosts, diseases and insect pests may have ravaged it in certain years; bank credit may have been as lean as the proverbial skimmed milk, and the orchardists may have been just a stride or two ahead of the sheriff, and no doubt they wondered many a time whether or not they were going to make the grade. Yet, in spite of all these trials and tribulations, the fact becomes increasingly apparent that the apple growing business in this district is a good business; that things are looking up; and that those who have caught the true perspective of how to grow apples successfully are rapidly becoming wealthy.

Seven years of close contact with apple growers in this district have convinced the writer that there is a good future ahead of this business but that there is an awful lot yet to be learned by growers and technical men alike.

Approved Methods Pay

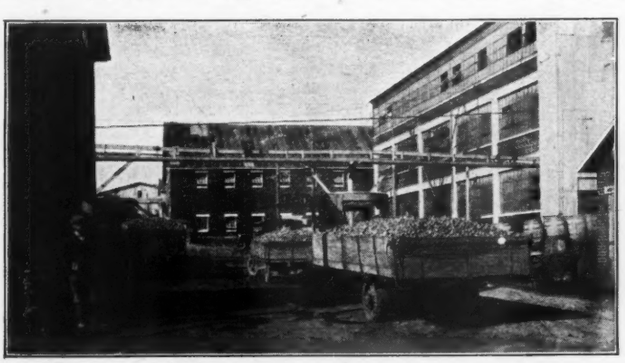
Granting that the element of chance or luck is an important factor in certain years, the fact remains quite clear that the apple growers who follow approved methods are realizing good returns on capital invested.

This is a young apple growing section compared with such sections as western New York and New England. The real progress in commercial apple growing in this district occurred largely within the past 30 years.

As in other fruit sections, a wide variation in managerial ability exists among our fruit growers. It is generally recognized that the best method of improving apple production is first to improve the minds of the growers, and it is just those growers who devote considerable time to studying their business who are making the rapid advances.

In general, we should say that the apple growers of this district are facing good prospects but in spite of this there are certain fundamental troubles which need correction. After we analyze one of these troubles in this article we hope the reader will probably realize that the salvation of the apple grower does not depend so much upon farm boards and federal aid as upon his own individual efforts.

The writer has, during the past seven years, been engaged in investigational work in the Cumberland-Shenandoah district, particularly in northern Virginia. It has been his job to produce scientific data, predigest it and make it palatable for consumption by apple growers of widely varying ability. Last winter he spent several months on a special study relating to apple production and some of the factors involved in the net return to the growers. The region studied was the eastern Panhandle of West Virginia, which borders on Frederick county, Virginia, in the heart of the Shenandoah apple belt. The data resulting from this study, amplified by those from five years of previous study, have brought out certain rather impressive facts which are of interest to apple growers not only in this district but in other sections of the United States.



Hauling culls instead of barreled apples in Winchester, Va. These culls are hauled by truck from a radius of 20 miles. Infrequently over a million and a half pounds of cull apples arrive in Winchester in one day, while the average annual tonnage is approximately sixty million pounds.

Too Many Culls Produced

An eight-year packing record from a State owned and operated packing house at Inwood, W. Va., covering the handling and packing of over 25,000,000 pounds of apples of the common varieties grown in this section indicates that only 58.5 per cent of the tree crop was packed in barrels or other containers. The remainder of 41.5 per cent went to the by-products plants as canners or ciders. These data are as extensive and as detailed as any similar data in the knowledge of the writer. In fact, he knows of no carefully kept apple packing record covering such a large amount of apples in the whole Shenandoah apple belt.

Naturally, a wide variation in the percentage of packed apples might be expected in the different varieties. In 1927, for instance, Ben Davis packed out 70 per cent, while in 1925 only 28.5 per cent could be packed. In 1924, due to disease infection, frost injury and spray russeting, the entire lot of 50,000 pounds of this variety had to be sold as canners and ciders. We have mentioned the Ben Davis variety because it is particularly susceptible to all kinds of injury. This variety has consistently shown the lowest percentage of packed fruit. The Delicious has shown the highest percentage, the average for an eight-year period being 85.8 per cent compared with only 45.3 per cent for the Ben Davis during the same period.

What would happen if 41.5 per cent of all Ford cars proved to be faulty? Supposing 41.5 per cent of the passenger trains on the Pennsylvania came in late. How long would Babe Ruth be the idol of the baseball fans if he came to bat and struck out 41.5 per cent of the time? A loss or diversion from the proper trade channels of 41.5 per cent of the total production of a modern factory would certainly result in failure, and yet, our average apple grower in this district packs only approximately 60 per cent of his total production.

Culls a Basic Trouble

The writer is fully aware that this is a very broad statement, but there is ample evidence to prove it. In Figure 1 we have a diagrammatic presentation of the apple packing percentages of average growers in the Cumberland-Shenandoah section. The figure shows what is actually packed and what ought to be packed if orchard management were of the best. We are picturing average conditions, realizing that many of our growers pack a much higher percentage of their crop than 58.5 per cent. We consider this low percentage of packed apples to be one of the basic troubles of the apple business in the Cumberland-Shenandoah apple belt.

What Causes Culls?

Extensive studies made at Inwood, W. Va., and at the large apple by-products plants (To Page 19)

Of the two branches shown, the one to the left in the picture is from an unmulched tree. The one on the right is from a mulched tree. Both show, as near as possible, the relative growth of wood and fruit.

PAPER Proves Satisfactory for ORCHARD MULCH

Increased Length and Caliper of Tip Growth, Together with Increase in Size of Fruit, Proved to Be the Outstanding Results Obtained from First Year's Trial of Mulch Paper in This Hundred-Acre Vermont Apple Orchard

By G. F. RICHARDS

Steward Orchards, Clarendon, Vermont

BEFORE starting a discussion on paper mulch, it might be well to state briefly what it is and what it is not. It might be well also to give a brief outline of the conditions which compelled us to make our paper mulch experiments.

Paper mulch is not a fertilizer, it is not fool-proof, and it is not a panacea for all the evils to which young apple trees are heir. It cannot be used economically with every system of cultivation, but where advisable, any system of cultivation can be adapted to its use.

From our experience the past season, paper mulch has more than paid its way as an agent in moisture conservation and weed control with surprising results in the way of tip-growth, both in length and caliper.

Soil Variation Prevents General Cultivation

The soil on which our trees stand ranges from deep black loam with a hard clay subsoil, through lighter loam to gravel bars of ancient river-beds, with a thin "scum" of weathered soil on top and glacial moraines of pure sand. This soil variation has made it impossible to practice any general system of cultivation, as in some blocks of trees we have all the variations, with ledges of limestone thrown in for good measure.

In our bearing blocks, comprising about 4000 trees, we have in the neighborhood of 500 non-bearing trees, representing original trees lost through deer and mouse damage, borers or mechanical injury. It is almost impossible to till such trees closely with any cultivating instrument except the grubhoe, and the high cost of hand labor, coupled with the prevalence of witch grass, has made that type of cultivation almost impractical.

On our heavier soils, witch grass roots penetrate to a great depth, taking plant food from the soil and in some cases strangling the apple-tree roots. On our light soils, the witch grass has taken possession of the thin layer of top soil, appropriating the fertilizer before very much of it can reach the tree roots.

These conditions have made it imperative to adopt some system which would make for better tip growth and bring our trees more quickly into bearing.

We have practiced for some years on bearing trees a system of heavy hay mulching, using from about 500 pounds of dry hay on a 15-year-old tree to about 1500 pounds on a 40-year-old tree. This system has given us wonderful results in size of fruit and regular cropping, but has proved impractical on non-bearing trees for the reason that it is impossible to concentrate enough hay around a small tree to effectually keep down the witch grass. Furthermore, the mulch does not rot into the soil so well, being for the most part exposed to the sun instead of being shaded as in the case of a larger tree.

But our experience with hay mulch led us easily and logically to the use of paper. We have used one of the advertised brands, supposedly strong enough to wear for three years . This is cut into lengths of three, four and six feet, the paper being three feet wide.

The three-foot lengths were used on trees just planted and on trees one or two years planted. The four-foot lengths of three-foot paper were supplemented by the same length of 18-inch paper, which, allowing for the lap, gave us a four-foot square. The six-foot lengths were used two to the tree, making a square. These were used on trees up to six or seven years of age.

We tried various methods of holding down the paper—no small matter during strong wind—and finally decided on a wire staple, six inches across the top, with shanks varying from four to eight inches, depending on the soil in which we used them. A four-inch shank in sand proved to have very little holding power, while it was almost impossible to insert the same length of staple into some of our hard-packed gravel soils.

These staples were inserted on each corner of the paper. On the larger sheets one staple was inserted in the middle of each side, with two staples on the laps on each side of the tree. Ten staples were used for the six-foot squares.

Where the trees were in sod, the worst hummocks were leveled off with a grubhoe before laying the paper, although for the most part the condition of the sod was such that the paper laid fairly smooth.

A graphic illustration of increase in size of the fruit from use of mulch paper. Left, mulched. Right, not mulched.

Time of Application

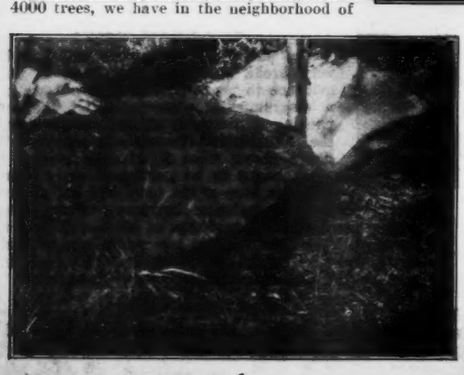
Where the soil was under cultivation we laid the paper after the first cultivation, then went on with our customary tillage. This proved to be a mistake, from the standpoint of labor cost, as many of the papers were torn loose from the staples and had to be replaced. However, the trees made a much better growth, and in the future we shall not paper a cultivated field until after seeding.

Another mistake was in papering a block of newly planted trees too soon. In order to make what we could consider a fair test, we papered alternate rows of a newly planted block, which was in sand. Previous cultivation of the field consisted of plowing and harrowing. The land was cleared of pine and tamarack brush a year earlier.

The unpapered trees thrived, making a very satisfactory growth early in the season, while the papered trees were late in leafing out and made very little growth. However, by mid-July the papered trees had made enough growth to compare favorably with the unpapered trees and early in September averaged about six inches more growth than the unpapered trees.

On taking the matter up with Dr. L. H. Flint, the "paper mulch man" in the Department of Agriculture, he advised me that, in papering a young tree before the roots had time to get established in the soil, the additional heat generated by and confined under the paper was apt to wither the young roots.

Our growth records for (*To Page* 17)



The increase in tip growth can best be noted from the above two pictures, showing average unmulched tree at left compared with average mulched tree at the right.

Lower left. The soil under the mulch paper was moist throughout the season.

Lower right. The mulch paper was easily fastened into place by means of wire staples.

Left. Giant narcissi of the trumpet type. Right. Cluster of tulips showing perfect specimens.

Above. Narcissi planted in drifts among the shrubbery at the top of the rock wall.

FALL BULBS for SPRING BLOOM

Fashions Change in the Planting of Flowers. The Marching Rows of Daffodils in Thin, Straight Rows and Clashing Colors Are Yielding to Freer and More Natural Arrangements and More Subtle Groupings.

By HAZEL BURSELL

Photographs by A. M. Prentiss

EVERY thoughtful gardener knows that he must always be looking forward and planning for the future—in the spring of the year he plans for mid-summer and autumn, and in the fall he plans for spring. It is only by such careful planning that he can assure himself of beauty in his garden at each season.

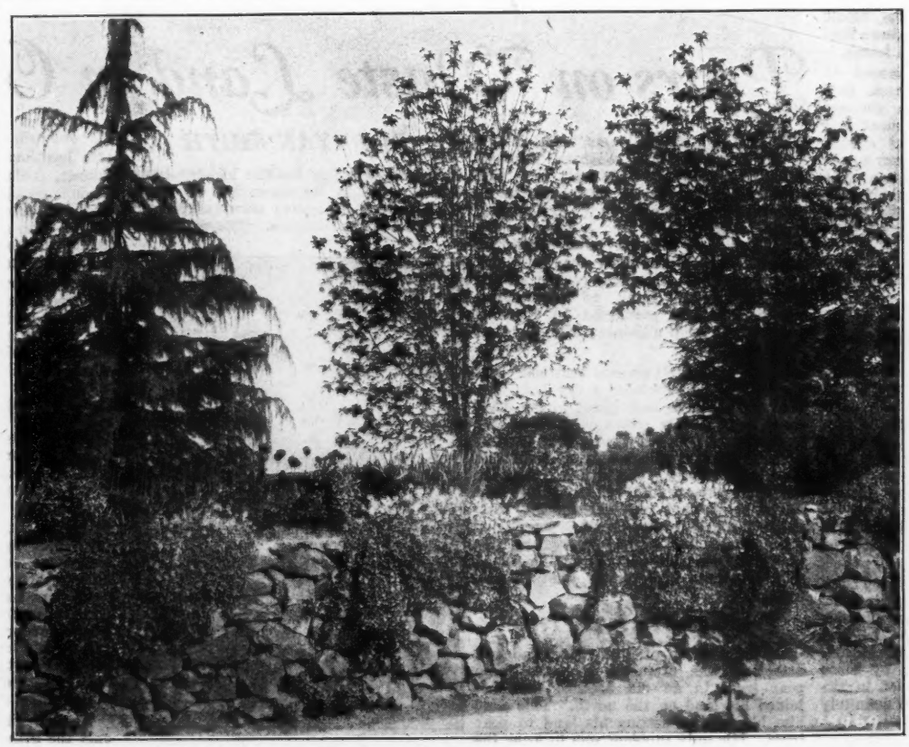
Bulbs are the ideal solution of the spring bloom problem. They are planted in the months of September, October and early November while the ground is still workable and they at once begin the process of root formation and below-ground growth. Though apparently dormant, they are, in reality, preparing for the first favorable weather, when they will send up their fresh green leaves and promising bloom spikes to bring joy to the winter-tired eyes of the gardener and his friends.

With respect to bulbs as well as to perennials, American taste is changing in the planting of flowers. The circular and square beds of red and yellow tulips are going. Marching rows of daffodils in thin straight lines and clashing mixtures of colors are yielding to freer and more naturalistic arrangements and more subtle combinations of colors and varieties. Instead of definite beds and borders, gardeners are now using "drifts" of the various colors and varieties, carefully distributed throughout the beds and borders or among the lower-growing border plants of the shrubbery. Modern gardeners also strive to avoid the "smallpox" effect produced by the careful alternating and spacing of single specimens, preferring to mass and drift out the members of the various groups naturally and gracefully.

"Drifts" are long, narrow and irregular bands of plants or bulbs, weaving and curving, at different lengths throughout the border. When properly laid out they give continuity, movement and unity to the design. A beginning may be broad and taper to a single line or the drift may swell and recede in different points of its sweep. Thought is necessary in locating the areas of each color or variety, but the individual bulbs should fall in careless drifts and scattered masses. Perhaps the easiest way is to throw handfuls of bulbs into chosen areas, planting them as they lie, some close, some far apart. Little groups should not be planted at regular intervals, nor should the whole space be planted solidly.

Color Harmonies Best

Mixed colors are often sold for making large plantings, yet the effect is more pleasing if only one kind is used in each mass and the different groups blended together. When blending colors, interplant a few bulbs of each variety at contiguous portions of the drifts. The blending of pale to intense shades of color is surpassingly beautiful by this method of planting overlapping drifts. Contrasting colors are seldom good together.



Tulips silhouetted against the skyline. Note the mass plantings among the evergreens.

Almost everyone who has a garden can find some spot for natural effects: the base of a large tree, the shade of a spreading apple, a little knoll or bank, or the broader opportunities offered by a bit of woods and the slopes of a meandering stream or pool. The rock garden offers endless possibilities to the gardener with imagination. We have already mentioned the effectiveness of such flowers as the narcissus, daffodil and tulip when seen silhouetted against dark shrubbery. We have also touched on the desirability of colorful bulb drifts in the perennial border. From this it will be seen that there is just the right bulb for every garden planting, whether large or small, formal or informal.

In planning bulb plantings the careful gardener always considers desirable combinations with other shrubs and plants so as to provide a later interest for these plantings and at the same time permit the bulb tops to die down and the bulbs to ripen undisturbed, without leaving a vacant place in the garden. In this article we shall suggest some possible and desirable combinations, with the idea that our readers will be inspired to devise other new and interesting combinations. This article is written especially for beginners, since there are a good many such who have but a hazy idea as to what bulbs to plant, what varieties, how to plant, and even how to buy. So far we have considered color combinations and the formation of plantings.

The best time to order bulbs is during the blooming season. With notebook and pencil you can wander through the gardens of friends or in exhibition plantings and select those that appeal to you. Then you can order what you really want. Also, by ordering early you are sure to get your order filled and with choice bulb specimens. For those who did not place their order early, the best way to buy in the fall is to secure a catalog from a reliable bulb specialist, nursery or seed store, and order from descriptions and pictures. Remember that it is better to buy larger quantities of a few choice varieties than small lots of many varieties.

Bulbs in Two Classes

For outdoor planting, there are two general classes of bulbs. The first is the large bulb class, which includes the narcissus, tulip and hyacinth—the ones commonly known as Dutch bulbs. The second is the minor or small bulb class. This includes Crocus, Scilla, grape hyacinth, Chionodoxa, and a large number of others, many of them of permanent character, hardy, and suitable for planting in the border or rock garden.

Of the large bulbs the narcissus or daffodil is the most important. There is among garden novices considerable misunderstanding as to these terms. Narcissus, daffodil and jonquil are used. The daffodil is simply the English word for the Latin name of narcissus. Jonquil is a term that is popularly applied to certain types of narcissus.

(To Page 18)

The PEACH INDUSTRY of GEORGIA

The Salvation of This Important Georgia Industry Is Being Found in the Use of Better Cultural Methods, the Packing and Shipping of Better Grades, Lower Freight Rates, and the Building of a Co-operative Marketing Agency of Sufficient Size to Control the Crop.

By GEORGE H. FIROR

University of Georgia

THE PEACH INDUSTRY in Georgia is being viewed with some concern by a great number of peach growers, and the future of the peach business in Georgia is being watched with considerable interest by growers in States competing.

It is estimated that during the past few years around 2,000,000 peach trees have been pulled up or have lost their potential producing power out of a total number of around 12,000,000 trees. Most of this decrease in acreage has taken place in the southern part of the peach belt, where the phony peach disease has played an important part.

Production Declining

The large production years of 1926 and 1928, coupled with the phony peach disease, bacterial spot and oriental fruit moth, and the lack of finances, are no doubt the reasons why the peach movement of Georgia will be on a decline for several years to come.

It is undoubtedly true that there has been an overplanting of the early varieties, with the resulting poor effect on the markets. These varieties lack size and quality and they have a tendency to demoralize the demand for the better fruit that follows. The overdoing of this early peach planting has been a poor proposition.

At the present time the Piedmont section of the State or that portion of Georgia north of Macon, has too many late peaches, namely, Hiley and Elberta, with the result that when this crop of fruit goes on the market the prices are on a decline due to fruit coming from competing States.

Financial Strings Tightened

During the past several years insurance companies, marketing agencies and others capable of financial support have rendered aid to the peach grower. In the past this aid has been more or less indiscriminately given, with the result that in many instances the concerns furnishing the money have suffered losses.

Crop insurance people announced at the beginning of the 1929 season that they would not finance peach growers for that year. This announcement had a tendency to tighten financial strings and made it hard for the growers to obtain necessary funds for operation. The growers who had demonstrated their ability to grow peaches obtained the necessary support to produce a crop of fruit without difficulty.

Phony Disease Causes Many Trees to Be Destroyed

The Bureau of Plant Industry of the United States Department of Agriculture, co-operating with the Georgia State Board of Entomology, has made considerable progress in eradicating the phony peach disease. On July 1, 1929, campaign work was started in Upson county, a county noted for its peaches, shipping around 1000 cars each season. Eradication efforts have been confined so far to that part of the peach territory outside of the heavily infested area. Out of 3,300,000 trees so far inspected, 22,000 trees were found to be infected with the phony disease and were destroyed.

It is estimated that the peach industry of Georgia has been reduced 20 per cent, principally because of the phony disease. The heavy infestation is found in that section of the State south of Macon. However, it is firmly believed by those who understand the disease that in the course of a few years it will be definitely eradicated.

Enthusiasm Ran High

After the advent of the boll weevil several years ago enthusiasm ran very high to plant to peach trees the cotton acreage that was abandoned because of the boll weevil. This brought about a condition that opened the gates to a large number of get-rich-quick growers and production increased faster than market facilities. The get-rich-quick grower and the grower who has not been able to withstand the reverses are getting out of the peach business as quickly as they entered the industry.

In 1920 the counties of Houston, Peach and Macon shipped 60 per cent of the Georgia peach crop. During the year of 1924, when the State shipped 13,504 cars, this same area contributed approximately one-half. In 1926, these counties contributed only 35 per cent. In 1928, when Georgia moved 15,926 cars from a production of 10,000,000 bushels of fruit, these three counties shipped 24 per cent. The year 1929 saw a still further reduction in the number of cars contributed. However, in the face of this decline, this area, which held such a prominent place in the peach industry of Georgia, may again become a leading factor in the peach business of Georgia.

The growers of this section at one time made a wonderful profit on their investment in growing peaches for market. Recent investigations have proved that peaches can be produced on rootstock resistant to phony peach disease. This will lead the old fruit grower of the past, who loves to grow peaches, back again into peach production under an entirely new condition.

An Important Industry in Georgia

The peach survey made in 1925 by the Bureau of Economics, and the Georgia State College of Agriculture co-operating, has shown that peaches have an important place in the agriculture of Georgia. The fact that peaches grown in central Georgia come onto the markets of eastern cities ahead of peaches grown in other States gives the producers of Georgia a decided advantage over those in other peach centers.

Peaches grown in Georgia have an advantage due to the regularity with which the crop is produced. The growers of central Georgia can always count on some kind of a crop, if the orchards are looked after properly, while the growers of north Georgia can anticipate a crop failure about one year in five.

At the present time Georgia leads all the southern States in the production of peaches and supplies most of the territory east of the Mississippi River until the States farther north begin to ship. In recent years about 60 per cent of the Georgia shipments were consumed in the Middle Atlantic and New England States and only five per cent west of the Mississippi.

Motor Transportation Increasing

Any increase in production of peaches in the United States cannot be governed by the number of cars shipped, as motor transportation has increased decidedly in distributing peaches to nearby consuming centers. This has led to an outlet in the distribution of peaches that must be considered in the growing of this fruit.

The total production for 1928, the largest peach crop Georgia has ever produced, was 10,000,000 bushels. The total carloads shipped was 15,926. The large production in that season was due to the young acreage coming into bearing in north central and north Georgia.

TOTAL PRODUCTION FOR GEORGIA FROM 1915 TO 1929.

Year.	Production in bushels.	Carloads.
1915	5,330,000	4,468
1916	3,510,000	3,119
1917	4,510,000	3,869
1918	6,092,000	8,052
1919	5,895,000	7,401
1920	3,799,000	5,987
1921	6,550,000	10,330
1922	4,900,000	7,370
1923	5,248,000	8,701
1924	8,342,000	13,504
1925	7,304,000	13,513
1926	9,400,000	17,963
1927	5,943,000	11,963
1928	10,000,000	15,926
1929	2,707,000*	5,471*

*Note—to be revised.

Georgia no doubt reached its peak production of peaches in that year. We can safely say that the potential producing power of peaches in Georgia is on a decline and we can look for better prices in the future, providing the growers can maintain the present high quality of fruit.

The peach industry in Georgia is here to stay in spite of the prophesy that the Georgia peach industry is rapidly declining. We are encourged by the work that is being accomplished in the eradication of the Mediterranean fruit fly in Florida and we look forward to the time when the peach industry in Georgia will not be endangered by this pest.

Too much money has been made out of peaches in the past to permit anyone to think for a moment that the industry is going to shrink to any appreciable extent. Its salvation is to be found in the use of better cultural methods, which will lower the cost of production, the packing and shipping of better grades, the lowering of freight rates, and the building of a co-operative marketing agency of sufficient size to control the crop.

Pears on Waste Land in Oklahoma

By BRYAN SMITH

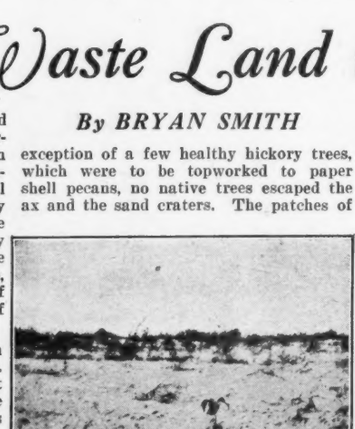
IN 1925 an oil well was being drilled less than one mile south of Thackerville, Love county, Oklahoma, and men were hastily purchasing land near the location with no thought to its agricultural value. Among those who had apparently worthless land left on hand when the wildcat oil well was abandoned as a dry hole was J. W. Gladney, cashier of the First National Bank of Gainesville, Texas, who had purchased 50 acres of blow sand land adjoining the town of Thackerville.

While other land owners mourned when the wildcat was declared a dry hole, Mr. Gladney began to look about to see what could be profitably grown on his land. He knew that it was too sandy to be used as a meadow, and to attempt to farm this land was useless; the shifting sand in the springtime would kill anything that might be planted on it, though tests showed the soil was fertile enough to grow almost any crop. For years this land had been idle, and the quail peas (a wild legume), had grown upon it profusely.

Waste Land Set to Pear Trees

In the autumn of 1927, Mr. Gladney's attention was attracted to some large pear trees in an old orchard that adjoined his land on the north. This gave him his idea of setting his land to pear trees. His only problem was to grow the trees until they were large enough to withstand injury from the blow sand, the climate and soil being well adapted to pears.

On his land there were wind-formed sandmounds and deep craters, with here and there scattering saplings and patches of green briars. Mr. Gladney decided to cut the saplings, drag them into the craters, which the wind would fill up with sand, the brush holding the sand that blew into the old depressions. With the exception of a few healthy hickory trees, which were to be topworked to paper shell pecans, no native trees escaped the ax and the sand craters. The patches of green briars were cut and burned, but the dead weeds and other small vegetation were left to prevent the soil from blowing.



An average sized pear tree in the Gladney Orchard four months after it was set. Notice the old location stake beside the tree.

Trees Set 30 Feet Apart

To add to the appearance and to reduce the labor of cultivating, Mr. Gladney had his orchard carefully measured and the tree locations accurately laid off with a transit. This insured straight rows, and made it possible to cultivate the trees four different directions. The tree location stakes were set 30 feet apart each way, and a 40 foot driveway was left around the entire orchard.

In February, 1928, Mr. Gladney ordered his trees from a Kansas nursery. The shipment of trees was delayed, preventing the setting of the orchard until late in March. Seedlings were therefore planted which Mr. Gladney later budded. In this way he was able to cut his outlay for nursery stock. Because of the delay in shipment of the nursery stock, only 25 acres were set at the time. The remaining trees were set in nursery rows to be used as replants and to extend the orchard another year.

In setting the trees, the land was disturbed as little as possible to prevent it from blowing. By the use of a gauge, each tree was set in the small spade holes exactly where the tree location stake had been. In this way each tree was in perfect line when the soil was packed around it. After each tree was set, the old location stake was stuck down beside it on the west, to protect the small tree from the moving blowsand, which is at its worst during a high west wind.

Though the location stakes protected only the little trees for about eight inches above the ground, they saved the entire orchard from being destroyed by a hail storm and hurricane two months after setting.

Mr. Gladney seeded this orchard to sweet clover last fall. The rough land and vegetation will protect the young clover until its root system is established.

During the summer of 1929, Mr. Gladney had all his rows of seedling pear trees budded alternately to Kieffer and Bartlett to secure better pollination.

"Apple Day" at Iowa State College

By T. J. MANEY

FRUIT GROWERS from all sections of Iowa met for the first annual "Apple Day" at Iowa State College Tuesday, August 27, where they inspected the experimental work being done by the horticultural department and the experiment station. The morning's program included a visit to the cold storage plant, an explanation of the work being done in the insectary building with fruit pests, and an inspection of the pathology experimental plots, the air-cooled storage houses and the small fruit experiments.

Common air-cooled storage units have been used on the horticultural farm at Ames and it has been found that such varieties as Grimes Golden, Willow Twig and Black Twig and varieties which scald badly may be stored in them with as good success as in cold storage.

R. M. Clark, a Mitchellville orchardist, has some of these storage units and says that in about three or four years they save him their construction cost in cold-storage savings.

The pomology section of the station is conducting experiments with about 400 hardy stocks. The growth behavior of 70,000 seedling stocks, which are the progeny of 60 varieties, are being studied. Some of these are showing promise and may be used for new stocks on which to propagate standard apple varieties.

Little has been known up to date concerning the adaptability of various varieties for growing stocks. For instance, some varieties, among them Hibernal and Virginia Crab, which are hardy and productive, produce poor seed and therefore are not suitable for growing stocks.

The part of the Apple Day program dealing with pruning young trees was of special interest to growers of young orchards, many of whom were in attendance. The results of various methods of pruning in the young orchard at the college were seen by the visitors. The modified leader type, in which the central leader is cut back after five or six years, is recommended for Iowa apple orchards.

Many young orchards are being started in Iowa or have been started in the past few years. The number of these indicates a healthy growth of the industry.

The visitors saw the cover crop demonstration in the college orchard, where oats and mammoth clover are being grown. Most orchardists use some cover crop. Excellent results have been secured here with mammoth clover, which is not commonly used, although some orchardists in Iowa have used it. An experimental plot at Charles City has proved successful.

The orchard containing 5000 crossbred apple seedlings was also shown to the orchardists and the work explained. Breeding work has been in progress here for about 40 years, and the Iowa station has developed, named and released for commercial growing about 10 good varieties fruit. Among these are Patten plum, Patten pear and the following apples: Sharron, Edgewood, Secor, Earlham and Ames. The Patten pear is one of the best for the upper Mississippi Valley. It will stand 40 degrees below zero, is of excellent quality and is blight-resistant.

An interested group of Iowa growers observing cover crop tests at Iowa State College, Ames, Ia.

Support of Fruit Fly Appropriation Urged

SUPPORT of a proposed $50,000 appropriation to combat the Mediterranean fruit fly in Georgia is urged by M. L. Yeomans, state entomologist.

Of this amount, according to Mr. Yeomans, $10,000 would be used by the Department of Entomology, in co-operation with the United States Department of Agriculture, in making a survey to determine the presence or absence of the fruit fly, while $40,000 would be used only in case of emergency—the emergency to be determined by the governor and State Board of Entomology.

If the fly should gain a substantial foothold in Georgia, according to Mr. Yeomans, it would cause the complete destruction of the peach industry in every section of the State. The winter vegetable industry in the lower part of the State would be in serious jeopardy, while the growing cantaloupe and Satsuma industries, also in this part of the State, would be wiped out.

"When the Japanese beetle was first discovered in New Jersey," Mr. Yeomans stated, "the Department of Agriculture in that State asked for an appropriation of $50,000 to eradicate the insect. It was turned down, and now the States of Delaware, New York, New Jersey and Pennsylvania, together with the federal government, are appropriating over $1,000,000 a year to prevent the spread of this pest."

It is estimated that on the few crops mentioned, the loss from the Mediterranean fruit fly would mount to several millions of dollars.—*J. H. Reed, Georgia.*

Liza, the negro cook, answered the telephone one morning, and a cheerful voice inquired, "What number is this?"

Liza was in no mood for trifling questions, and said, with some asperity, "You-all ought to know. You done called it."

New motoring economy results from these big car features

Foremost among the qualities responsible for Pontiac's popularity among farm people is its remarkable economy. True, the Pontiac Big Six offers a long list of additional advantages—power, dependability, comfort and many others of the greatest importance. But leading them all are the innumerable savings, appearing not only in Poptiac's purchase price, but in maintenance, operation and depreciation as well, and totaling to hundreds of dollars during the lifetime of the car. Read below the partial list of features which make these economies possible.

The 2-Door Sedan - Body by Fisher

***The L-head Engine*—200-cubic-inches of piston displacement yielding 60 horsepower at 3000 revolutions per minute; moderate engine speed which assures longer life.**

***The Harmonic Balancer*—An important Oakland development which eliminates torsional vibration in the crankshaft, providing smoother operation and lengthening the life of the motor.**

***The Crankcase Ventilation System*—A pressure vacuum system of crankcase ventilation, with separate air cleaner, prevents water vapor from diluting the engine oil, thus maintaining its lubricating quality for a much longer period.**

***The Cross-Flow Radiator*—An exclusive feature which makes efficient cooling certain in all seasons of the year, prevents losses of alcohol and water, increases smooth performance and lengthens engine life.**

Go to any Oakland-Pontiac dealer and find out about Pontiac's many other big car features—about its noiseless, dirt-and-weather-proof, internal four-wheel brakes—about its specially designed bodies by Fisher of composite hardwood and heavy gauge steel construction, with adjustable driver's seat, specially designed interior fittings by Ternstedt, and many fine car appointments. Then let this dealer appraise your present car and show you how easy it is to enjoy these big car features and to get the full benefit of the many economies offered by the Pontiac Big Six.

Pontiac Big Six, $745 to $895 f. o. b. Pontiac, Mich., plus delivery charges

OAKLAND MOTOR CAR CO., PONTIAC, MICH.

PONTIAC BIG SIX

PRODUCT OF GENERAL MOTORS at $745

FEDERATED Secures Rehearing in California

California Farm Bureau Federation Denounces Findings of California Director of Agriculture as "Having No Support in Either Record or Fact," and Secures Reopening of License Hearing.

ON THE INSISTANCE of the California Farm Bureau Federation, the California Department of Agriculture has granted a rehearing to the Federated Fruit and Vegetable Growers, Inc., in the matter of renewing the license to the Federated to operate in California as a produce dealer.

This decision was reached after conferences between representatives of the Farm Bureau with Governor Young, the attorney general, the corporation commissioner and the Department of Agriculture of California, and followed the publication of a telegram from the California Farm Bureau Federation, in which Director Hecke was scathingly criticized.

This telegram, directed to the Federated Fruit and Vegetable Growers, Inc., was made public early in September, and unsparingly denounced the published charges of G. D. Hecke, California Director of Markets, against the Federated as being "false and malicious" and as having "no support in the record or in fact," and stated that the published charges "were the result of political chicanery" and were "designed to injure United Growers of America as well as the Federated and to deprive California farmers of the service offered to them."

"Findings" Filed in New York State Capitol

The statement denounced by the California Farm Bureau Federation was one incorporated in a 31-page report, purporting to be the "findings" of the California Division of Markets, in a hearing arising out of the handling of 55 cars of apples for 17 growers of Watsonville, Calif., by the Federated Fruit and Vegetable Growers in August and September, 1928. The chronology of the case appears to be as follows:

About February 15, 1929, according to the Hecke statement, the California Department of Agriculture and Markets opened formal hearings on the application of the Federated for a renewal of its license to do business in California, and evidence was taken in regard to 55 cars of apples which were reconsigned to export markets. Director Hecke states that on June 19 the Department refused to renew the Federated license. On August 30 the 31-page statement purporting to be a review of the evidence at the California hearings, was filed by Director Hecke, as a public document, in the office of the New York State Department of Agriculture and Markets at Albany, N. Y., and was simultaneously published in a New York City weekly devoted to the interests of fruit and produce distributors; a periodical, so it is stated, that has never shown any particular friendliness for grower-owned cooperatives.

In the "report," Director Hecke accused the Federated Fruit and Vegetable Growers, Inc., of having violated the provisions of the California Produce Dealers' Act in charging against the growers the foreign commissions on exported apples without authorization from the growers, and in pooling the apples from the Watsonville growers.

Entire Report Disputed

The truth and good faith of the entire report is vigorously disputed by officials of the Federated Fruit and Vegetable Growers, Inc. The following statements cover the matter of the marketing contract terms:

"The charge that unauthorized extra commissions were deducted by the Federated on export sales, is fully answered by Article 8 in the Federated contract, which was only partly quoted in the findings, and which reads in *full* as follows:

Deductions Authorized

"'8. EXPENSES: All expenses, of transportation, refrigeration, car service, including packing, inspection, loading, unloading, sorting, reconditioning, exporting, or other special service, sales, commissions and brokerages, collection charges, R. R. undercharges, all clearing-house fees and charges and all other charges advanced by Distributor, *shall be paid by Shipper, who hereby authorizes such deductions.*'

"The charge that the Federated has overcharged the shippers on packing costs is fully covered by the following section of the Federated contract:

"'4. PACKING AND LOADING: Distributor, if requested, will arrange to provide the facilities for grading, cleaning, packing and loading and inspection of same, and it is to receive from the Shipper the customary rates for such services, *which shall not be less than actual cost of providing same.*'

"The charge that the Federated pooled shipments without authority is covered by the pooling section of the contract, as follows:

Agreed to Pooling

"'6. ASSEMBLING: Distributor is authorized to pool Shipper's crops with similar grades from other Shippers, subject to explanatory clause (c) on back hereof.—(c) The shipments covered by this contract, at the Distributor's discretion, may be pooled and sold with shipments of like grade and varieties of other Shippers whose crops are delivered to Distributor in the same district, and shall be settled for at the average pool price, and an accounting for the pool shall be an accounting for each Shipper's shipments in said pool.'

"Such misleading publicity has caused some people to believe that the Federated has been prevented from doing further business in California. The facts are that it has merely discontinued to handle business for a small group of non-member shippers in California. The membership business of the Federated in California is steadily increasing because many California people who have learned all the facts, know that these charges are the result of malice and competitive trade politics, and that the Federated is performing a valuable co-operative service in California."

Denounced by Californians

Probably the most scathing comment on the Hecke report is to be found in the full text of the statement issued by the California Farm Bureau Federation over the signature of J. J. Deuel, manager of the law and utilities department of that organization, who sat as an observer at the hearings which the Hecke report purports to summarize. The telegram follows:

"East Bakersfield, Calif.,
"September 3, 1929.

"Federated Fruit and Vegetable Growers, Inc.,
"90 West St., New York, N. Y.

"We are absolutely astounded at the effrontery displayed by Director Hecke in disseminating false and malicious findings against Federated. These findings have no support in the record or in fact, and were the result of political chicanery.

"From close personal contact with all phases of case can say that Federated acted at all times within specific and legitimate limits of its contracts.

"Exporting was contemplated under contract and practice of Federated was identical with that of other distributors under similar contracts.

"Federated during no part of the hearing was charged with this violation and never had oportunity to offer evidence in its behalf. Department of Agriculture investigators admitted Federated properly accounted for every dollar received.

"Officers and directors of Federated are known all over California as of high standing and excellent reputation and the contrary finding of Director Hecke is not supported by anything in the record and is founded in malice alone.

"We believe present action by Hecke designed to injure United Growers of America as well as Federated and to deprive California farmers of the service offered by them.

"Members of California Farm Bureau Federation are highly incensed at Hecke's action and will give you full support.

"CALIFORNIA FARM BUREAU FEDERATION
"By J. J. Deuel, Manager Law and Utilities Department."

To Embarrass United Growers?

The peculiar handling of the entire case has aroused considerable discussion in eastern fruit and produce circles. Even among the larger privately-owned distributing organizations there appears a feeling of amazement at the action of Director Hecke. A well-settled conviction pervades in marketing circles that the publication of the "findings" was intended to embarrass the United Growers in certain eastern sections where that organization is making noticeable headway with the local co-operatives.

"Not what YOU SHIP, but what I GET"

the Buyer says

FINE fruit goes into your crates, of course—but how much of it bruises or spoils in shipment? You can't make a nickel on fruit that the buyer rejects.

How to cut down shipping losses Chilean Nitrate of Soda helps to protect you against that loss. By putting your fruit in good, vigorous condition, Chilean Nitrate gives you the firm, healthy fruit that ships well to markets near or far, and arrives with the minimum of spoilage. Larger, juicier, better-flavored fruit, too—the kind that grades 'fancy' and 'extra-fancy', and brings top prices. And, as almost every grower knows, Chilean Nitrate of Soda sets a heavier crop on every tree. A few cents worth on each tree will return you dollar upon dollar in profit.

Chilean Nitrate is not synthetic, not artificial, never harms the soil. It is the *natural* nitrate, the reliable nitrogen fertilizer that has been used for 100 years to improve the quality and increase the yield on every kind of crop.

FREE—Fertilizer Book Our 44-page book, "How to Use Chilean Nitrate of Soda" gives fertilizer information on fruit, truck, grain and other crops. Sent free on request. Simply write and ask for Book No. 1, or tear out this ad and send with your name and address on the margin.

Chilean Nitrate of Soda
EDUCATIONAL BUREAU
57 William Street, New York, N. Y.

RALEIGH, N. C.
COLUMBIA, S. C.
ATLANTA, GA.
WASHINGTON, D. C.
MONTGOMERY, ALA.
NASHVILLE, TENN.
ORLANDO, FLA.
LAFAYETTE, IND.
JACKSON, MISS.
LITTLE ROCK, ARK.
ALEXANDRIA, LA.
TYLER, TEXAS
COLUMBUS, OHIO.
SAN JOSE, CALIF.
LEXINGTON, KY.
COLUMBIA, MO.

In replying, please refer to Ad No. 36-A

California Fruits Enter the Orient

WITH a cargo of fresh fruits and vegetables, to be used in determining the feasibility of their commercial export to the Orient, the 900-ton British motor ship Silverhazel left September 14 for China and Japan.

Earle Overholser, professor of pomology of the University of California, representing the Giannini Foundation, and Carl Spurlock, agricultural commissioner of Solano county, representing that county and the State Department of Agriculture, were in charge of the specially installed laboratories to watch maturity of the cargo.

The Silverhazel is equipped with an extensive refrigeration system, intended to preserve the fruit and vegetables sufficiently to warrant future commercial export to the Orient. If the experiment proves successful, other merchant marine vessels will be installed with the same system, and export of perishable agricultural products to China will be undertaken commercially on a large scale.

The cargo represents most of the agricultural districts of California. Oranges and lemons, pears, apples, grapes and vegetables are aboard.

The cargo was solicited by the fresh fruit export committee of the San Francisco Chamber of Commerce, which assembled at the pier to see the ship depart.

M. W. Creagh, member of the fresh fruit export committee, who was associated with an attempt in 1898 to ship grapes to the Orient, said:

"We will watch with keen interest the progress of this experiment, and if it proves successful, extensive export of perishables in the future may be a means of bringing millions of dollars yearly to California."—*Henry Holdal, California.*

The Market Review

By PAUL FROEHLICH

United States Bureau of Agricultural Economics

RATHER general rains during early September relieved the prolonged drought in many sections of the country, but in some places the rains came too late to help crops materially. Late fruit may be improved as to size. Prospects for most fruits declined slightly during August. Citrus fruits just about held their own and, in a few spots, there was some improvement. Potatoes suffered from the dry hot weather more than any other vegetable or fruit, and another 24,000,000 bus. were dropped from the potato estimate by September, making this the lightest crop in 10 years except for the 1925 crop.

General Prospects

Apples.—The apple crop is now estimated at 145,523,000 bus., prospects being reduced about two per cent by the hot dry weather of August. The crop is now expected to be about 40,000,000 bus. below that of last season and nearly that much below the average production of the previous five years. Production will nowhere be heavy, but in Virginia, Maryland, northern New England and in some of the western States the crop will be a little above average. The September forecast of commercial apples is 29,473,000 bbls., which is about one per cent less than the August forecast but nearly 16 per cent below last year's crop of 35,268,000 bbls. Washington, the leading apple State this year, has only about an average crop. New York, second in importance, has a commercial crop 16 per cent less than that of 1928, with a much larger proportion of Baldwin and McIntosh. In Virginia, only a part of the crop has suffered from dry weather and the fruit is sizing-up better than usual.

Peaches.—The peach crop deteriorated during August in nearly all States, chiefly as a result of dry weather, and the September forecast of 44,374,000 bus. is two per cent less than the August report. Last year the production was 68,374,000 bus. and the five-year average is 52,224,000 bus. In Illinois and Arkansas the crop turned out slightly larger than had been expected, while in New York and Michigan the dry weather retarded growth, so that the size of the fruit will be smaller than usual. The quality of peaches in the Southeast was so poor that shipments did not come up to expectations. As indicated by earlier reports, the California crop is light, the September forecast being only 12,781,000 bus., compared with 25,752,000 last season and 17,808,000 the average for five years, 1923 to 1927.

Pears.—During August, droughty conditions retarded the growth of pears in Illinois, Michigan and New York, so that the outlook in these States is not so good as it was a month before. But prospects improved in the Pacific Coast States, which have nearly 60 per cent of this year's pear crop; so the total forecast has been increased slightly. The crop is now estimated at 20,056,000 bus., compared with 24,012,000 last year and an average of 20,211,000 during the previous five years.

Grapes.—Prospects for grapes declined slightly in all important States except New York. The total crop is now estimated at 2,032,000 tons, as against 2,671,000 produced last season and a five-year average crop of 2,250,000 tons. The present estimates include 1,000,000 tons fresh weight of raisin varieties in California, compared with 1,406,000 tons last year; 420,000 tons of wine varieties, as against 482,000 last season, and 350,000 tons of table varieties, compared with 478,000 produced in 1928. The sharp decrease in all varieties was due chiefly to the frost of last spring. The grape crop outside of California is now placed at 262,000 tons, or 14 per cent less than last year.

Citrus.—Condition of citrus fruit crops in the leading producing areas was still quite low, compared with the condition a year ago. In California, oranges averaged 59 per cent of normal and in Florida about 63 per cent. These figures compare with 93 per cent and 80 per cent respectively in September, 1928, and are far below the 10-year average. Oranges in Texas and Arizona range close to 88 per cent of normal. Condition of Florida grapefruit is only 59 per cent, as against 71 per cent a year ago, while the California crop shows a condition of 78 per cent. Texas and Arizona grapefruit are reported 90 per cent of normal. The California lemon crop shows a condition of 62 per cent, whereas at the same time last season the figure was 86 per cent. Limes in Florida are doing better than last season.

The California fresh plum crop is forecast at 39,000 tons, as against 66,000 in 1928. California prunes for drying may amount to 114,000 tons, or 106,300 less than last season. On a fresh basis, the apricot crop is estimated at 190,000 tons, which would be 15,000 more than last year.

Grape Movement at Peak

Shipments of grapes usually reach their annual peak around October 1. At the height of the season last year and in 1927, weekly movement approximated 10,000 cars, but such heavy shipments were not expected under the lighter crop situation of the present season. Annual movement of grapes frequently totals 80,000 cars, making this one of the most important products in the market. Large additional quantities are used locally for manufacturing purposes.

By the middle of September, about a dozen States were shipping this fruit, and the daily output was rapidly mounting. However, the volume was only half as heavy as a year ago. The Ozark district was finished; Michigan and New York were becoming active, with Pennsylvania soon to follow. Most of the September supply was from California, as eastern grapes do not become important until October. Prices of California table stock declined materially from their high opening level, but juice grapes were still ranging $55-$62.50 per ton of Zinfandels or Alicante Bouschets, with Muscats around $35-$40, f. o. b. shipping points. These prices are about $10 above the corresponding figures for last season. Shippers were getting around 75c per crate or lug box of the Thompson Seedless variety and 90c-$1 on Malagas, while city market values of these table grapes were $1-$1.75. The 12-quart baskets of early varieties of New York grapes were jobbing at 40c-60c. One market reported Delaware stock in two-quart baskets at 16c-17c, and the four-quart containers from Arkansas and Michigan ranged 25c-28c each.

Grape Growers Aided

The Federal Farm Board has undertaken, in cooperation with a number of California banks, to furnish the Sun-Maid Raisin Growers a credit up to a maximum of $9,000,000, with which to make advances to farmers on their 1929 raisin crop. Other grape growers in California also should benefit, as this substantial financial aid was arranged jointly with the Sun-Maid Raisin Growers'

(To Page 20)

All Roads and All Loads are Alike to the SIX-SPEED SPECIAL

YOU have never seen anything like this performance unless you've seen the International Six-Speed Special at work.

It is the truck that fits farm hauling like a glove and has all the power and speed the average man needs.

It is the truck that will pull your heavy loads through plowed fields at snail's pace and then get away like a scared rabbit when you hit the hard highway. With 6 *speeds forward and* 2 *reverse,* there is always the right gear ratio for every road and every load.

It is the truck that will pull a 60-bushel load of wheat up a 38% grade—and stand the gaff!

It is the truck that is *built especially for rural hauling;* built to conquer snow, sand, gumbo, ruts, mud, rough stubble fields, plowed ground, hills, elevator inclines, or what have you!

It is the truck that was announced early last year. It filled the bill so well that the factories were at once swamped with orders. Trainloads went out in all directions.

It is the truck that is *all truck all the way through,* designed to meet a special farm hauling need, and marketed at a price that is surprisingly low.

International Harvester branches and dealers over the United States are prepared to show and demonstrate the Six-Speed Special equipped for rural hauling. Go to the nearest showroom and get acquainted with the biggest farm truck value on the market. The International line also includes Speed Trucks and Heavy-Duty Trucks up to 5-ton capacity.

INTERNATIONAL

INTERNATIONAL HARVESTER COMPANY OF AMERICA (Incorporated)

606 So. Michigan Ave. Chicago, Illinois

FRESH FROM THE ARCHITECTS, THE ARTISTS AND THE DECORATORS

IT IS a fresh and comfortable beauty—this of new Haddon Hall. Everything is here to delight your eye and your sense of comfort. Sports rooms, raquet courts, gymnasium, sunbathing rooms, Sandy Cove, a playroom for the children—and bedrooms of beautiful decorative schemes, the results of unstinted planning. Ocean breezes blow in through open windows, and out the windows there's the broad ocean view.

Relax and feel at home here. Both riding and golfing facilities. Write for rates and literature. A Motoramp garage adjoins the hotel.

CHALFONTE-HADDON HALL

ATLANTIC CITY
American and European Plans
Leeds and Lippincott Company

FACTORY PRICES!
21 JEWEL—Thin Model
STUDEBAKER
The Insured Watch
The only high-grade watch sold direct from factory!
Let us send you one of these superb 21-Jewel Studebaker watches direct from factory. No obligation. If you like it and believe our low factory prices save you money—keep it. Pay for it in easy monthly payments or cash.
FREE—6-Color Book
To those who write immediately we will mail a beautiful 6-color style book showing complete line of Studebaker watches—all at factory prices. Write for it TODAY!
WRITE!
Handsome strap and bracelet watches in newest styles—at big savings. Write for FREE style book at once!
STUDEBAKER WATCH COMPANY
Directed by the Studebaker Family—known three-quarters of a century for fair dealing
Dept. NU5 South Bend, Indiana
Canadian Address: Windsor, Ont.

PEACH TREES $5.00 per 100 & up.
APPLE TREES $7.50 per 100 & up.
Small or large lots. Blood Red & Yellow Delicious Apples, Pear, Plum, Cherry, Berries, Grapes, Nuts, Shade and Ornamental Trees Vines Shrubs. Catalog in colors FREE
TENN. NURSERY CO., Box 10 CLEVELAND, TENN.

EASY TO PLAY
EASY TO PAY
FREE Saxophone BOOK tells just what you want to know about Saxophone. Write for it.
BUESCHER
TRUE-TONE SAXOPHONE
Easiest of all wind instruments to play and one of the most beautiful. In one hour you can learn the scale. In two weeks play popular music. In 90 days you should be able to take your place in a band. Good Saxophone Players are in big demand with high pay.
Free Trial You may have 6 days' free trial on any Buescher Saxophone, Cornet, Trumpet, Trombone or other instrument. A small amount down and a little each month makes it easy to own any Buescher. Mention instrument and complete catalog will be mailed you free.
BUESCHER BAND INSTRUMENT CO.
2882 Buescher Block (643) ELKHART, INDIANA

Baskets for Apples, Peaches, Plums, Grapes, Tomatoes, Cucumbers, Beans, etc. Boxes and Crates for Berries, Cucumbers, Celery, Cauliflower and vegetables of all kinds. Plant boxes.
Catalog mailed on request
The Pierce-Williams Co.
South Haven, Mich., or Jonesboro, Ark.

Find Cultivated Orchards Pay

AN INCREASE of 47 barrels per acre as an average for a 10-year period for a cultivated orchard as compared with an orchard left in sod is the record obtained by horticulturists at the New York State Experiment Station at Geneva in a test comparing the two systems of orchard management. Based on these experiments and on many years of observation in the leading fruit sections of the State, the station specialists advocate the cultivation of most New York orchards during the summer, followed by the sowing of a cover crop in the early fall. This system of orchard management is believed to have decided advantages in most New York apple districts.

In the station tests, an average yield of 69 barrels per acre was secured for 10 years in an orchard which was left in sod. During the same period, a cultivated orchard produced on the average of 116 barrels. The trees in the cultivated orchard also showed greater vigor and more growth than those in sod, it is said.

The beneficial effects of cultivation are believed to be due to the saving of the soil moisture and the lack of competition between the trees and the sod for moisture and plant food. Also, insect pests and diseases are very noticeably curtailed in cultivated orchards where less protection is afforded the insects and disease organisms than they find in sod.

It is pointed out by the station fruit specialists, however, that where soils wash badly or on rocky land where cultivation would be difficult, tillage would be impractical. Also, the cost of cultivating an orchard is greater than keeping it in sod, so that unless the net returns are greater from the cultivated orchard there is no advantage in cultivation.

Ten-Day Quarantine for Fruit Fly Carriers

DRASTIC ACTION against persons bringing into California the dreaded Mediterranean fruit fly has been suggested by Arthur Brisbane, noted editorial writer for the Hearst publications, which has found backing by southern California fruit growers, as well as prominent persons of the State.

Believing that the entire fruit crop will be threatened by the pest unless quick action is taken against persons bringing fruit into the State, Mr. Brisbane has suggested passage of a law to legalize a 10-day quarantine for anyone caught in the act of taking fruit into California.

Once having prohibited the getting of fruit into the State, Brisbane believes the law would serve a double purpose: It would have its practical value and at the same time arouse public co-operation against the great danger.

The Brisbane "law" is being sponsored by such men as F. T. Fogg, vice-president of American Fruit Growers, Inc.; George F. Clements, head of the agricultural department of the Los Angeles Chamber of Commerce; John J. Craig, a large citrus grower of southern California, and others.

When interviewed, Mr. Fogg stated that every precaution which will provide for the fair inspection of persons who might bring fruit into California is justified.—*Richard Hayford, California.*

Ocean Freight Rate Reduction Opens New Markets for Grapes

NEW MARKETS for California fresh grapes are predicted as the result of a cut in ocean freight rates from $40 to $25 per ton, announced by the East Coast of South America Conference Steamship Lines. The $15 reduction, which went into effect in August, applies to grapes in refrigeration and to shipments from both San Francisco and Los Angeles.

According to shipping men, the new rates mean an opportunity to build up a large and profitable export business with the east coast of South America.

This section now gets its grapes from the Mediterranean countries, which are declared to have had a virtual monopoly. Under the new rates, it is said California will be enabled to successfully compete with southern Europe.

The demand is estimated at 4500 tons annually in South America. Five new refrigerator ships, having 60,000 cubic feet of refrigerating space each, were placed on the San Francisco-Brazil run in September by the Westfal-Larsen line.

Freezing of grapes, under a recently discovered method, which has no effect on the flavor, color or form of fruit, also is expected to prove of value in the new export business.—*Henry L. Holdal, California.*

Rees Completes Pear Survey

A FORTY-TWO page survey of the pear industry of the United States and Canada, by Ralph W. Rees, New York Central horticultural agent, has just been published by the Agricultural Relations Department of the New York Central Lines.

It points out the rapid increase in pear production in the United States during the past 10 years. Most of this increase has taken place in the Pacific Coast States, California, Oregon and Washington. Pear production has continued about stationary in the central and eastern States with insufficient new plantings during the past 10 years to maintain present production. Some pear growers in the central and eastern States have been receiving a very good income from their orchards, but the average pear orchard has not given a sufficient yield during the last few years to be profitable.

Many growers are now facing the problem of whether to abandon their investments in pear orchards or to put forth greater effort to increase yields.

This pamphlet, which is well illustrated, covers in detail the present pear situation and the future production trend in all important commercial pear centers. Copies of this pamphlet may be secured by writing the Agricultural Relations Department, Room 256, New York Central Station, Rochester, N. Y.

Tons of Peach Pits

IT WOULD be enough to make a cook shudder to think that all the peach pits shown in the picture on page 22 came from peaches pared by hand. As a matter of fact they were not thus pared, but were dried with the skins on and packed by a single packing house in California, and sent East in carlots.

Previous to the World War, thousands of tons of peach and apricot pits from California dryers and canneries were sold to German agents and shipped all the way across the continent and the ocean to Germany, where they were converted into sodium benzoate, benzoic acid, and a number of other products. A large part of these products were then shipped back here and sold at a handsome profit. Due to the war, this order of things no longer prevails, for a California chemist, Dr. S. M. Woodbridge, of Bernardino, during two years of experimenting, perfected a process for making not only the German products but a number of other valuable articles. He has succeeded in producing from peach pits a toilet soap, washing powder, fruit oil for use in salads and cooking, and a nut meal for flavoring griddle cakes—all on a commercial scale. Formerly about 6000 tons of the pits were shipped to Germany annually, which brought to the dryers and canners about $45 a ton. Now, by utilizing them locally, the pits have a wholesale value of more than three times the selling price.

"Hort" Meetings

FLORIDA. Constitution provides that annual meting of Florida State Horticultural Society shall convene on second Tuesday in April each year unless changed by the executive committee. The executive committee, at its January meeting, always sets the date of the meeting. It is usually in April during legislature years and in May during the off years. The next place of meeting is at Sebring, Fla.—*Bayard F. Floyd, Secretary, Davenport, Fla.*

GEORGIA State Horticultural Society will hold its annual meeting at Thomaston, Ga., October 17 and 18, 1929.—*George H. Firor, Secretary, Athens, Ga.*

IDAHO. The meeting dates of the Idaho Horticultural Association have not been set. The meeting is usually held during the month of January, but the definite date is not fixed by the directors until later in the season.—*M. L. Dean, Secretary, Boise, Idaho.*

IOWA. Plan on attending the 64th annual convention of the Iowa State Horticultural Society to be held at the Savery Hotel, Des Moines, Ia., Wednesday and Thursday, December 4 and 5, 1929. It is expected that the Iowa Fruit Growers' Association, the Iowa Beekeepers' Association and the Iowa Peony and Iris Society will hold their annual conventions in connection with that the horticultural society.—*J. Spencer Hagen, Jr.*

KANSAS. The annual meeting of the State Horticultural Society will be held in Atchison, December 4, 5 and 6, 1929. Within a short time we will be able to give further information regarding this meeting.—*James N. Farley, Secretary, Topeka, Kans.*

MAINE State Pomological Society meets in Lewiston, Me., November 19, 20 and 21, 1929, for their annual meetings. The Maine Seed Improvement Association and the Maine Dairymen's Association meet at the same time and all hold their annual exhibitions at the Armory.—*E. L. White, Secretary, Bowdoinham, Me.*

MARYLAND. Our executive committee has not passed on the date, but generally the Maryland State Horticultural Society meets with the Maryland Agricultural Society. I am pretty sure that the following dates will be authentic. We are meeting in the Lord Baltimore Hotel, Baltimore, Md., January 7 and 8, 1930.—*A. F. Vierheller, Assistant Secretary-Treasurer, College Park, Md.*

MASSACHUSETTS Fruit Growers' Association meeting will be held at Worcester, Mass., early in January, 1930. The 1929 meeting was held on January 9, 10 and 11.—*William R. Cole, Secretary, Amherst, Mass.*

MICHIGAN. The dates for the winter meeting of the Michigan State Horticultural Society will be December 3, 4 and 5, 1929. The meeting will be held again in the Waters-Klingman Building at Grand Rapids. In connection with the program will be held the commercial exhibits of machinery, nursery products, packages and spray materials.—*H. D. Hootman, Secretary, East Lansing, Mich.*

NEBRASKA State Horticultural Society winter meetings are to be held in conjunction with the Organized Agriculture meetings, January 7, 8 and 9, 1930, in Lincoln, on the Agricultural College Campus.—*E. H. Hoppert, Secretary, Lincoln, Nebr.*

NEW JERSEY. The annual meeting and exhibit of the New Jersey State Horticultural Society will be held at Asbury Park, November 20, 21 and 22. The society headquarters will be in the Berkeley-Carteret Hotel, and the meetings and exhibits will be held in or near the Arcade on the Boardwalk.—*Arthur J. Farley, Secretary, New Brunswick, N. J.*

NEW YORK. The seventy-fifth annual meeting of the New York State Horticultural Society will be held at Edgerton Park, Rochester, N. Y., on January 15, 16 and 17, 1930. A three-day speaking program will be carried out. The Exhibit Hall has a floor space of over 85,000 cubic feet. This has been completely filled the past few years.—*Roy P. McPherson, Secretary, Le Roy, N. Y.*

PENINSULA Horticultural Society meetings will be held December 5 and 6, 1929, at Easton, Mo.—*J. F. Adams, Secretary, Newark, Del.*

PENNSYLVANIA State Horticultural Association will meet January 21, 22 and 23, 1930.—*S. W. Fletcher, Secretary, State College, Pa.*

SOUTH DAKOTA. The date has not been fixed for the forty-first annual meeting of the South Dakota State Horticultural Society. It is to be held in Watertown, probably early in January, 1930.—*N. E. Hansen, President, Brookings, S. D.*

TENNESSEE. The annual convention of the Tennessee State Horticultural Society will be held in Memphis, Tenn., January 16 and 17, with headquarters at Hotel Peabody.—*G. M. Bentley, Secretary-Treasurer, Knoxville.*

VIRGINIA. The thirty-fourth annual meeting of the Virginia State Horticultural Society will be held in Roanoke, Va., Tuesday, Wednesday and Thursday, December 3, 4 and 5, with headquarters at Hotel Roanoke. The American Pomological Society has accepted an invitation to hold their meeting jointly with the Virginia society.—*W. S. Campfield, Secretary, Staunton, Va.*

WEST VIRGINIA. The meeting dates of the West Virginia State Horticultural Society have not as yet been set.—*H. P. Sevy, Secretary, Martinsburg, W. Va.*

WISCONSIN State Horticultural Society's annual convention will be held this year at the Raulf Hotel, Oshkosh, November 13, 14 and 15.—*H. J. Rahmlow, Secretary, Madison, Wis.*

XUM

Efficient, Low-Cost Storage

It Is Possible in Many Cases to Utilize a Portion of Some Existing Structure on the Fruit Farm for Apple Storage, in Which Event the Cost Is Likely to Be Defrayed by First Season's Earnings.

By W. W. MAGILL

University of Kentucky

THE MOST expensive farm storages for fruit are not necessarily the most successful. In fact, each year a number of Kentucky fruit growers remodel some building on the farm that is no longer used for its original purpose, such as for tobacco or for live stock. Such houses now in use throughout the State have demonstrated that apples from sprayed orchards can be held with practically no losses until December, and even January and February, at which time apples invariably sell through their local roadside market at from 50 cents to $1.25 per bushel higher than at picking time.

Such storage houses have been constructed at a cost varying from 10 to 60 cents per bushel capacity. In many cases the only cash outlay consists of a few feet of lumber, a couple rolls of building paper, half a keg of nails and a couple pairs of hinges. The past two years some of the modern insulation materials, such as Celotex, Insulite, Masonite, etc., have been quite extensively used, for they are cheap and very efficient.

A majority of the houses now in use in Kentucky have depended on the double wall with the so-called "dead air" space between the studs, special effort being made to have tightly constructed parts at the sill and plate so as to keep the air from circulating.

Farm Storage Reduces the Package Charge

The grower who stores his fruit in commercial cold storage is under obligation to pack his fruit in barrels, boxes or baskets, but in the home storage any home-made crate will suffice and, furthermore, the same crates can be used year after year. Orange crates are a very satisfactory storage container, as they are light in weight, stack up well and hold a standard bushel without piling up. Some growers have accumulated several thousand orange boxes by picking them up at the grocery throughout each year since their orchard was planted.

The common basement or underground cellar may be frostproof and yet be a very poor apple storage, because it does not allow for sufficient change in air to cool the fruit, or for the regulation of the humidity in the storage.

This first factor can be corrected by taking into consideration the law of gases. It is a well known fact that cold air is heavier than warm air. If air with a temperature of 35 degrees Fahrenheit comes in contact with apples having a temperature of 60 degrees Fahrenheit, the cold air absorbs the heat from the fruit, expands and rises, causing a circulation of air. The air-cooled storage is designed to take advantage of the above principle by means of cold air intakes at the floor and warm air outlets in the ceiling. The inlet and outlet flues can be added when building or remodeling the storage at a very nominal cost. If the storage is built above ground, the air intakes need be merely small openings or windows in the foundation walls and ventilator holes cut in the floor.

Size of the Storage

Naturally, the number of bushels of apples the owner cares to store will govern the size of the storage building. He should also consider whether or not it will be to his interest to construct a building where the basement can be used for storage and the main floor for grading, sizing and packing and as a general storeroom for orchard equipment throughout the year.

Two and one-half cubic feet of space in the storage is usually necessary for each bushel of apples stored. This allows for space between the crates and the wall, between the top crates and the ceiling and other waste space. Thus, a house to hold 600 bushels should have a capacity of 1500 cubic feet, or a house 12 feet wide, 16 feet long and eight feet high. A house 16 feet wide, 24 feet long and eight feet high will hold approximately 1200 bushels or 3000 cubic feet.

Construction of the Storage

No one building material or combination of materials can be considered best for a cool storage. Some materials, such as brick and concrete, are good conductors of heat or cold and when used should be in connection with the double wall, leaving an air space between the walls. Waterproof paper also can be used in the wall and ceiling construction.

Regardless of the kind of material used, there should be a four-inch space between the walls. This may be filled with dry shavings, sawdust, crushed coal cinders, etc.

The door and windows should be made to fit very tightly and in order to do this, the edges should be beveled to an angle of 20 degrees. To get an idea how this type of door is made, visit your nearest railroad depot and ask to see how the door of a refrigerator car is made. The same principle of construction can be used for this home storage.

Large Ventilation Capacity Essential

A common mistake in constructing the storage is in failing to install sufficient ventilators so that the air of the building can be quickly changed. Authorities on cool storage construction vary in their recommendations of the amount of ven-

(*To Page* 15)

At the right is shown a 20 by 40 foot, 2500-bu. house with an open door for the air intake and an old smoke stack 24 feet long and 30 inches in diameter for the air outlet.

INSULITE

the Wood-Fiber Insulating Board

FEWER heating days in INSULITE the Wood-Fiber Insulating Board STOREHOUSES Because

FULL ½ INCH THICK-MEANS **12½% MORE EFFICIENT INSULATION** THAN ORDINARY 7/16" INSULATING BOARDS

THE better insulated a storehouse is the less heat is required to protect its contents against freezing. Heat dries out moisture and most fruits and vegetables are 90% moisture. Dry out their moisture and you impair their quality.

An Insulite protected storehouse means fewer heating days—because Insulite, a full ½ inch thick, gives 12½% more efficient insulation than ordinary 7/16 inch insulating boards.

Consider the value of ⅛ thicker insulation at practically the same cost as ordinary insulation boards.

Consider further the advantage of an all wood-fiber board chemically treated to prevent deterioration—and vermin and rodent resistant—that's Insulite.

Furthermore Insulite has greater tensile strength, and in board form it can be easily and quickly applied. Just a saw, hammer, nails, and in a little time—the job is done.

Get ready now, winter is almost here—ask your lumber dealer, and remember—for real protection (fewer heating days) specify Insulite.

THE INSULITE COMPANY
(A Backus-Brooks Industry)
1200 Builders Exchange, Dept. 37J
Minneapolis, Minnesota

THIS simple test shows the superiority of Insulite as a non-conductor of heat and cold. Replace the cover of a kettle of boiling water with a piece of Insulite and on the Insulite put a cube of ice. Check the time required for the heat to pass through the Insulite and melt the ice. Make the same test with other insulating boards.

Mail This Coupon Today!

THE INSULITE COMPANY
1200 Builders Exchange, Dept. 37-J,
Minneapolis, Minnesota.

Gentlemen:
Please mail me a sample of Insulite to test for myself.

Name .....

P. O. .....

R. F. D. ..... State .....

USE INSULITE FOR BARNS ~ POULTRY HOUSES
Resists HOG HOUSES ~ SHEEP SHEDS
COLD ~ HEAT ~ DAMPNESS MILK ROOMS ~ DWELLINGS

Poultry Man Makes $207.25 Month On Side

PHIL BROWNING, PENN. Bee and Chicken Raiser started selling Stark Fruit Trees "On the side" in 1923 In recent month he earned $207.25 Cash Commissions and 4 Weekly Sales Prizes. He says:—

Cash Pay Weekly BIG Extra Prizes Weekly

Phil Browning Penn-sylvania Poultryman

"Men Who Can't Succeed With ALL Your HELP Must Be Helpless!"

Healthful, pleasant, outdoor work. Spare time or full time. Amazing NEW Money-making opportunity for men and women, in every section. EXCLUSIVE varieties to sell! WRITE AT ONCE!

Address Box S. W. 189

STARK BRO'S NURSERIES at LOUISIANA, MO. 113 Years

YOUR Opportunity COUPON! Use It TODAY

STARK NURSERIES, Box S. W. 189 Louisiana, Mo. A F.G.10-29

Send me—without one cent of cost or obligation on my part—complete details of your Stark Salesman's proposition.

Name .....

P. O. .....

St. or R. F. D. ..... State .....

OTTAWA LOG SAW only $39

GREATEST OFFER EVER MADE

PUTS THIS OTTAWA TO WORK FOR YOU

BIG BOOK FREE

Make Money! Wood is valuable. Saw 15 to 20 cords a day. Does more than 10 men. Ottawa easily operated by man or boy. Fells trees—saws limbs. Use 4-hp. engine for other work. 30 DAYS TRIAL. Write today for FREE book. Shipped from factory or nearest of 4 branch houses.

OTTAWA MFG. CO., 1351-W Wood Street, Ottawa, Kansas

SPRINGFIELD RIFLE, Model 1903

$19.50

Assembled and Refinished

8¾ pounds, 43 inches long, 24 inch barrel. Offered without bayonet, $19.50. Packing charge 50c extra. Ball cartridges $3.50 per 100. 380-page illustrated catalog with history of American arms and other Army and Navy equipment for 50c. Special circular for 2c stamp. Established 1865.

Francis Bannerman Sons, 501 B'way, N. Y. City

QUAKER SPRAY HOSE

with its cable-cord construction, speaks for itself in its service.

Tough as rawhide
Carries highest pressures
Resists corrosive sprays

Made in usual sizes, on reels up to 500 feet.

Don't be caught napping when the season opens. Order today. Ask for red cover Quaker Spray Hose.

QUAKER CITY RUBBER CO.
Wissinoming, Philadelphia

Branches
New York Chicago Pittsburgh
San Francisco

THROUGH the "MIKE" -- to THE FRUIT GROWER

Crop and Market News Broadcasting Schedules

By Bureau of Agricultural Economics, U. S. D. A.

Ala., Birmingham—WAPI, daily, 12:49 p. m.
Ark., Fayetteville—KUOA, daily, 12 noon.
Calif., Los Angeles—KFI, daily, 12:10 p. m.; KGFJ, daily, 5 p. m.
Calif., Oakland—KGO, daily, 5:30 p. m. and Thurs., 6:30 p. m.
Calif., San Jose—KQW, daily, 12:30 p. m. and 6:30 p. m.
Colo., Denver — KFXF, daily, 7 p. m.; KOA, 12 noon and 5:30 p. m. daily, Saturday 6:30 p. m.
Colo., Pueblo—KGHF, Saturday, 7 p. m.
Colo., Yuma—KGEK, Wed., 6 p. m.
D. C., Washington—WMAL, daily, 12:45 p. m.; WRC, daily, 1:15 p. m.; WJSV, daily, 12:30 p. m.
Fla., Jacksonville—WJAX, daily, 12 p. m.
Ga., Atlanta—WSB, daily, 2:30 p. m.
Ill., Chicago—WLS, daily, 11:45 a. m., 1:20 p. m.; 6 p. m.; KFKX, daily, 12:15 p. m., 12:45 p. m., 4:30 p. m.; WCFL, daily, 5:55 p. m.; WENR, daily, 7:15 p. m.
Ind., Indianapolis—WKBF, 10:45 a. m.
Iowa, Shenandoah—KFNF, daily, 8:15 a. m., 12:35 p. m., 12:40 p. m.
Kans., Manhattan—KSAC, 10th day each month, 12:45 p. m.
Ky., Louisville—WHAS, daily, 12:15 p. m.
Md., Baltimore—WFBR, daily, 1 p. m.
Mass., Boston—Springfield—WBZA, WBZ, daily, 12:30 p. m.; WEEI, daily, 12:40 p. m.
Mass., Worcester—WTAG, daily except Sat., 12:30 p. m.
Minn., Minneapolis—KSTP, daily, 12:15 p. m., 12:30 p. m.; WCCO, Sat., 12:30 p. m.
Mo., Jefferson City—WOS, daily, 9:35 a. m.
Mo., Kansas City—WDAF, daily, 12:15 p. m., 12:45 p. m., 5:35 p. m.
Mo., Kansas City—WHB, daily, 11:30 a. m.
Mo., St. Joseph—KFEQ, daily, 2:10 p. m.
Mo., St. Louis—KWK, daily except Sat., 12:15 p. m.; KSD, daily, 3:40 p. m.; WEW, daily, 2 p. m.
Mont., Havre—KFBB, daily, 12:30 p. m.
Nebr., Clay Center—KMMJ, 1st Monday each month, 11 a. m.
Nebr., Norfolk—WJAG, 1st Monday each month, 8:30 a. m.
Nebr., Omaha—WAAW, daily, 10:15 a. m., periodically 10:45 a. m.
N. J., Jersey City—WAAT, daily between 3:00–5:00 p. m.
N. J., Newark—WNJ, Mon., Tues., Wed., Thur., 10 a. m.
N. Mex., State College—KOB, monthly, day released, 12 noon.
N. Y., Buffalo—WGR, daily, 12 noon.
N. Y., New York City — WABC, daily, 12:45 p. m.; WNYC, daily except Sat., 5 p. m.; WEAF, daily except Sat., 12:30 p. m.; WJZ, daily except Sat., 5:30 p. m.
N. Y., Rochester—WHAM, daily, 6:25 p. m., Tues., Thur., Sat., 6:20 p. m., Thur., 6:30 p. m.
N. Y., Schenectady—WGY, daily, 12 noon, 1st Mon. each month, 12:01 noon.
N. D., Bismarck—KFYR, 1st Mon. each month, 1:30 p. m.
N. D., Fargo—WDAY, daily, 12:30 p. m.
Ohio, Cincinnati—WLW, daily, 7:30 a. m., 12:15 p. m.
Ohio, Columbus—WAIU, daily, 12:15 p. m.; WEAO, daily, 12:30 p. m.
Okla., Oklahoma City—KFJF, daily, 12:30 p. m., Mon. 4:20 p. m., Thurs., 4:30 p. m.
Okla., Tulsa—KVOO, daily, 12:15 p. m.
Pa., Lancaster—WKJC, daily, 11:30 a. m.
Pa., Philadelphia—WIP, daily, 6:55 p. m.; WFI, daily, 9:50 a. m., 1:30 p. m., monthly day received 1:30 p. m.
Pa., Pittsburgh—KDKA, daily, 12 noon, 1:15 p. m.
Tenn., Memphis—WMC, daily, 11:45 a. m., 12:15 p. m.
Tenn., Nashville—WSM, daily except Sat., 11:45 a. m., 12 noon.
Tex., Dallas—WFAA, daily, 12 noon, 12:15 p. m.
Tex., Fort Worth—WBAP, daily, 11 a. m.
Tex., San Antonio—WOAL, daily, 10 a. m., 12:15 p. m., 2:30 p. m.—monthly day received, 2:30 p. m.
Utah, Salt Lake City — KSL, daily, 12 noon.
Va., Richmond—WRVA, daily except Sat., 12:15 p. m., Wed., 12:30 p. m.
Wash., Spokane—KGA, daily, 11 a. m.
Wis., Fond du Lac—KFIZ, daily, 12 noon.
Wis., Poyenette—WIBU, daily, 1 p. m.
Wis., Stevens Point—WLBL, daily, 8 a. m., 9 a. m., 10 a. m., 11 a. m., monthly day received 12 noon.

Agricultural College Broadcasting Stations

ARKANSAS

Radio broadcast programs will be carried on by the Extension Service of the University of Arkansas College of Agriculture this fall at three stations, KUOA, University of Arkansas, Fayetteville; KTHS, Hot Springs, and KGHI, Marion Hotel, Little Rock.

COLORADO

The weekly programs presented by the Extension Service of the Agricultural College over station KOA are now broadcast from 8:45 to 9:15 p. m., Mountain standard time, every Friday evening.—*F. A. Anderson, Director, Extension Service.*

FLORIDA

Radio station WRUF, the University and State of Florida radio station, reopened September 21 after having been silent since August 3. The farm programs were resumed September 23. On the air at 1:00 p. m. daily. The wave length is 204 meters.

IOWA

WOI is owned and operated by Iowa State College and uses a power of 3500 watts on a frequency of 560 kilocycles, corresponding to a wave length of 535.4 meters. Since last November we have been designated as a daylight station, and divide time with station KFEQ of St. Joseph, Mo. We are broadcasting an address daily except Saturdays and Sundays at 12:45 p. m. This is agricultural in its nature. The talk on Mondays usually deals with animal husbandry subjects; Tuesdays, agricultural economics; Wednesdays, poultry; Thursdays, farm crops, and Fridays, soils. We have at different times run special programs dealing with horticultural subjects, and the series was sponsored by Prof. B. S. Pickett or some of his assistants in the horticultural department.—*W. I. Griffith, Director, Radio WOI.*

KANSAS

Kansas State Agricultural College (KSAC). The wave length of the station is 580 kilocycles or 316.9 meters. Our present schedule calls for a program from 8:00 to 9:00 a. m., 10:00 to 11:00 a. m., 12:30 to 2:30 p. m., and 4:30 to 5:30 p. m.—*L. L. Longsdorf, Program Director.*

NEW YORK

Cornell University. We are operating station WEAI, which is owned by Cornell University, and we are broadcasting from it an agricultural program each noon, except Sunday, that is, from 12:00 to 1:00 daily, Eastern standard time. We are also furnishing material more or less regularly for station WHAM at Rochester, WGY at Schenectady, WGR at Buffalo and WCAD at Canton. When the Columbia circuit, through WABC, New York, are putting on a radio program for farmers, we are also furnishing copies for that series of stations.—*Charles A. Taylor, Specialist in Extension.*

OHIO

Ohio State University, WEAO. The wave length is 526 meters or 570 kilocycles. Our agricultural broadcasts will, beginning with the first of October, be concentrated largely on Mondays. Each Monday at 12:50 p. m. Prof. C. R. Arnold, of the Department of Rural Economics, gives "Economic Information for Farmers." This talk by Prof. Arnold includes several phases of the farmer's business, and often the subject is of interest to your readers. The Monday night broadcast, beginning at 7:00 p. m., is our Farm Night program. On this program there are six lectures given by members of the College of Agriculture faculty.—*Robert J. Coleman, Publicity Manager.*

OKLAHOMA

KVOO—"The Voice of Oklahoma," Tulsa and Stillwater. Broadcasting Oklahoma A. & M. College "Farmers' Hour" from the Stillwater studio on Mondays, Tuesdays and Thursdays from 12:45 to 1:30 p. m. During the coming season we are broadcasting educational subject matter along the lines of agriculture, home economics and 4-H Club work. We are not stressing very much work along the lines of growing and marketing fruits, although occasionally we give such a talk.—*Ernest E. Scholl, Assistant Director.*

SOUTH DAKOTA

The South Dakota State College station has the call letters KFDY. It operates on a frequency of 550 kilocycles with the power of 1000 watts.—*H. M. Crothers, Dean, Div. of Eng.*

TENNESSEE

University of Tennessee. Our call letters are WOBT, and the station is located at Union City, Tenn. They broadcast with 1310 kilocycles. We started this service about six weeks ago, and plan to continue it indefinitely. Up to the present we have not dealt with data concerning fruit growing as this section of the state is devoted largely to small fruits. We try to make these talks seasonable, and we shall likely not have very much to say along this line until next year.—*J. Paul Phillips, Radio Director.*

WASHINGTON

State College of Washington, KWSC; wave length, 215.7 meters; frequency, 1390 kilocycles. Sunday, 4:00-5:00 p. m.; Monday, Wednesday and Friday afternoons, 3:00-5:00; Tuesday, 11:00-1:00 p. m.; Monday and Wednesday evenings, 7:30-10:00, Pacific time.—*Arvilla Weisel, Program Director.*

WEST VIRGINIA

West Virginia University, over station WMMN, 890 kilocycles. Agricultural programs Saturday afternoons, 4:10 to 4:30. —*Roy Yoke. Alumni Secretary and Program Director.*

NBC Farm-Home Broadcast Program

Broadcast daily by the United States Department of Agriculture in co-operation with the National Broadcasting Company.

Beginning September 30 the National Farm and Home Hour will go on the air from 12:00 to 12:45 p. m., Central Standard Time, instead of 12:30 to 1:15 p. m. as in the past.

NBC. October Programs

SEPT. 30—Review of September Markets for Manufactured Dairy Products, L. M. Davis, dairy market news expert.

Results from the Use of Various Hays in the Dairy Rations, T. E. Woodward, in charge of the federal dairy experiment farm at Beltsville, Md.

The Farm Calendar, Dr. W. J. Spillman, principal agricultural economist, division of farm management, Bureau of Agricultural Economics.

OCT. 1—How Important Is the Farm Woodlot in the National Wood Supply Situation?—Maj. R. Y. Stuart, chief of the Forest Service.

The Garden Calendar, W. R. Beattie, extension horticulturist, Bureau of Plant Industry.

OCT. 2—Monthly Review of the Agricultural Situation Throughout the United States, B. A. Genung.

The Farm Calendar, Dr. W. J. Spillman.

OCT. 3—Fall Summary of the Seed Market Situation, G. C. Edler, seed marketing specialist.

Weekly Chat to Homemakers, Mrs. Rowena Schmidt Carpenter.

OCT. 4—Facts on the Hog Cholera Situation, Dr. U. G. Houck, associate chief, Bureau of Animal Industry.

Monthly Summary of the Hog Markets, C. A. Burmeister, live stock marketing specialist.

The Farm Calendar, Dr. W. J. Spillman.

OCT. 7—Survey of New Game Laws of 1929-1930, Frank Earnshaw, division of game and bird conservation, Bureau of Biological Survey.

Approved Practices for Preventing Apple Scald, Dr. Charles Brooks, in charge of investigations of fruit rots and spots.

Farm Almanac and Calendar, Dr. W. J. Spillman, radio county agent at large.

OCT. 8—The Cotton Crop Report, W. F. Callendar, chairman of the Federal Crop Reporting Board.

Developments in the Farm Machinery Field, S. H. McCrory, chief of the division of agricultural engineering, Bureau of Public Roads.

OCT. 9—The Garden Calendar, W. R. Beattie, radio garden adviser.

Summary of Range Conditions, C. L. Harlan.

OCT. 10—Monthly Statement of the Federal Crop Reporting Board, F. W. Callendar.

Weekly Chat to Homemakers, Mrs. Rowena Schmidt Carpenter.

OCT. 11—Analysis of Cotton and Grain Crop Conditions, C. E. Gage and C. F. Sarle of the Federal Crop Reporting Board.

Farm Almanac and Calendar, Dr. W. J. Spillman, radio county agent at large.

OCT. 14—W. A. Sherman, in charge of fruit and vegetable market news and investigations, Analysis of the Potato Markets for the Current Season and Prospects for the Winter.

Dr. W. J. Spillman, Radio county agent at large, Farm Almanac and Calendar.

OCT. 15—Dr. J. W. T. Duvel, in charge of grain futures administration, Developments of Recent Years in the Contract Grain Markets.

W. R. Beattie, radio garden adviser, The Garden Calendar.

OCT. 16—Dr. O. C. Stine, in charge of statistical research, Monthly Examination of Factors Behind Current Markets for Agricultural Products.

Dr. W. J. Spillman, radio county agent at large, Farm Almanac and Calendar.

OCT. 17—L. H. Bean, expert in price analysis, The Situation in 1929 Apple Markets.

Mrs. Rowena Schmidt Carpenter, radio household adviser, Weekly Chat to Homemakers.

OCT. 18—W. A. Wheeler, in charge of hay, feed and seed division, The Effect of Supply and Demand on the Wheat Markets.

J. I. Hambleton, in charge of bee culture investigations, What Makes Honey Bees Behave As They Do?

Dr. W. J. Spillman, radio county agent at large, Farm Almanac and Calendar.

THE NBC. STATION LINE-UP

WRC, Washington; WOC, Davenport; WHO, Des Moines; KSTP, St. Paul-Minneapolis; KTMJ, Milwaukee; KOA, Denver; WSM, Nashville; WBT, Charlotte; KPRC, Houston; WJAX, Jacksonville; WKY, Oklahoma City; WPTF, Raleigh; WBAL, Baltimore; WJZ, New York; WRVA, Richmond; WEBC, Superior-Duluth; WBZ, Boston; WBZA, Springfield; WHAM, Rochester; KDKA, Pittsburgh; WJR, Detroit; WLW, Cincinnati; KWK, St. Louis; WREN, Kansas City; KYW, Chicago; WIOD, Miami; KVOO, Tulsa; WOW, Omaha; WMC, Memphis; WHAS, Louisville; WFAA, Dallas. Saturdays only—KSL, Salt Lake City; KPO, San Francisco; KGO, San Francisco; KGW, Portland; KOMO, Seattle; KHQ, Spokane.

XUM

Efficient, Low-Cost Storage

(*From Page* 13)

tilation space desirable. The lowest estimate given is one square foot of air intake per 800 cubic feet of space. Therefore, a small farm storage eight by 12 by eight feet, with a capacity of 250 bushels, or approximately 800 cubic feet, would need a floor ventilator one square foot in size. If the house is large enough to need more than one inlet ventilator, they should be distributed to three sides of the house.

The warm air outlets should extend from the ceiling on through the roof, and oftentimes it is an advantage to extend the ventilator shaft four feet or more above the roof. One square foot of outlet ventilator is considered sufficient for 1000 cubic feet of storage. The writer has visited several storages in Kentucky where no ventilator was provided, or perhaps only a six-inch tile for an inlet and a six-inch square vent, or, in other words, less than one-fourth the recommended ventilation capacity. One very successful 2500-bushel, home constructed house (approximately 20 by 40 by eight), used the wide outside door for the inlet and for the outlet an old sawmill smoke stack, 24 feet long and 30 inches in diameter, which was mounted on the end of the building opposite the door so that the bottom edge of the pipe was even with the ceiling. This tall smokestack created such a draught inside the storage that it was estimated the entire volume of air changed in less than 15 minutes.

The ventilators, doors and windows should be carefully covered with one-fourth-inch mesh galvanized wire to prevent mice and rats from entering the storage. The openings must also be equipped with tight-fitting, easily operated dampers, which must be practically air-tight.

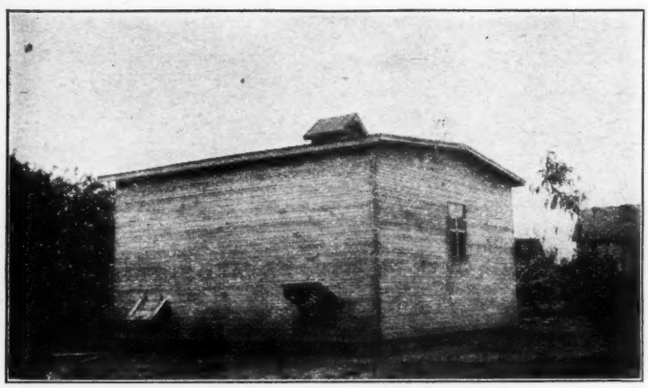
The Floor

A common dirt floor is very satisfactory, since it helps to retain moisture and thus prevents the fruit from shrivelling. As described later, a false wood floor is then put in place for stacking the crates. Where a tight wood or concrete floor is used, it is often necessary to place a pan of water in the storage to maintain the proper humidity. Sprinkling the walls with water at frequent intervals is also often practiced.

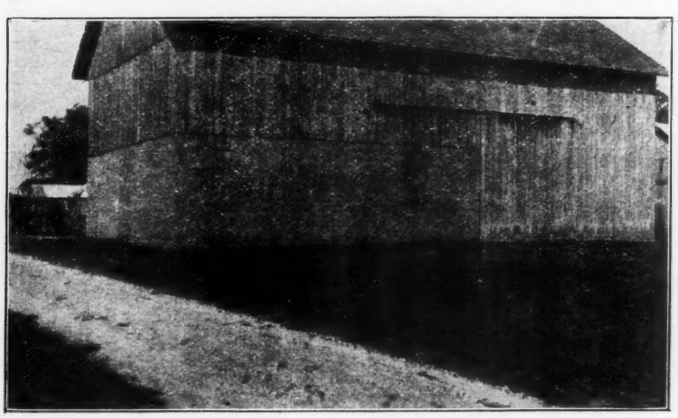
The writer's attention was called to an old granary in southwest Kentucky, which was remodeled into a 500-bushel capacity apple storage for less than $50. Apples were kept until May in this house with practically no loss from rots or shrivelling. This building already had a double wall. The owner used rough two by four studs against the walls of the house, sealed them with tongue and groove sheathing, and then relined with insulating material. The ceiling was treated in a similar manner. A special air-tight door made of four thicknesses of lumber, with insulation between each layer of lumber, was made and hung with durable hinges.

Another 1000-bushel capacity storage was observed in western Kentucky. This was constructed in the corner of a barn at a cost of less than $75. In this case, the outside of the barn was covered with cheap insulating material. The inside of the room, apparently 16 by 20 feet and eight feet high, was prepared by building walls and ceiling of rough lum-

(*To Page* 21)



A 16 by 24 foot, 1000-bushel capacity farm storage. This house was built in 1926. The material in the house cost less than $250 and was built by farm labor. Note the two large cool air inlets in the foundation (the opposite side has two similar air inlets) and the 30-inch square ceiling warm air outlet. A slatted door is used about eight inches above the dirt floor. At frequent intervals during the storage season several gallons of water are poured on the dirt floor for the purpose of adding moisture to the air to keep the apples from shriveling. Winesap, Stayman, Black Twig and Ben Davis have been kept in good marketing condition in this storage until March 20. The loss from rot in the past three years has been less than one per cent.



One end of a livestock barn which has been successfully converted into a 3000-bushel apple storage. Insulation was first put on the outside. On the inside insulation was fitted in around the framework next to the weather board. The inside was then sealed with tongue and groove lumber, another layer of insulation and then sealed again. Thus, an eight-inch dead air space was created between the outside and inner walls. Insulation was also put on the ceiling, and hay was stored in the loft above. The doors were insulated and serve as air inlets with two air shafts extending through the ceiling. This house has been in use three years and holds Winesap and Stayman in perfect market condition until February and March. The total cost of remodeling this building was less than $500.

Here is the storehouse of O. Kaiser, R. F. D. No. 3, Hastings, Michigan, during construction. All outside walls, ceilings, and partitions were lined with cane-fibre insulation to shut out extremes of temperature and prevent losses from spoilage.

How O. Kaiser

Prevents Losses from spoilage

by lining his storehouse with CANE-FIBRE INSULATION

MR. KAISER plants 14 acres of melons on his farm at Hastings, Michigan . . . picks during the afternoon . . . sells the following morning. His melons held heat during the night and many grew too ripe to sell . . . resulting in serious losses.

So Mr. Kaiser lined the outside walls, partitions and ceilings of his storehouse with cane-fibre insulation . . . and provided forced air ventilation to cool his melons over night. In the hottest weather a block of ice is placed in the fan room and the air drawn over it. Now he has no trouble in keeping his melons in first class condition.

Fruit farmers everywhere find the easy, economical solution to their storage problems in cane-fibre insulation. This remarkable material shuts out scorching summer heat and destructive frosts . . . makes it easy to control humidity . . . helps provide proper ventilation.

No longer are you compelled to sell your crops in over-loaded markets. You can hold them for better prices in properly insulated houses. Apples can be stored for months . . . all fruits and vegetables can be kept more safely . . . in spite of extreme variations in weather.

Celotex is the *only* insulating material made from the long, tough fibres of cane. It comes to you in big, strong boards that add lasting strength to the walls and roofs of old buildings. And in new buildings, your insulation adds little or nothing to the cost, since Celotex replaces other materials.

These cane-fibre boards are easy to handle . . . easy to apply just like lumber, with large-headed roofing nails.

Talk things over with your dealer or contractor as soon as you can. Find out just what it will cost to bring your old storage house up-to-date with cane-fibre insulation. Also fill out and mail the coupon below for our new free booklet, "Insulating Farm Buildings with Celotex".

The Celotex Company, Chicago, Illinois. Sales distributors throughout the world. In Canada: Alexander Murray & Co., Ltd., Montreal. Reliable dealers can supply Celotex.

CELOTEX
BRAND
INSULATING CANE BOARD

The word CELOTEX (Reg. U. S. Pat. Off.) is the trade mark of and indicates manufacture by The Celotex Company Chicago, Ill.

THE CELOTEX COMPANY A F G 10-29
919 North Michigan Avenue, Chicago, Illinois
Gentlemen: Please send me your new free booklet, "Insulating Farm Buildings with Celotex".
Name.....
Address.....
City.....*State*.....

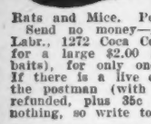
The SEASIDE HOTEL
ATLANTIC CITY, N.J.

AMERICAN PLAN
Single rooms, running water—$5.00, $6.00, $7.00 per day.
Single rooms, running water—$30.00, $35.00, $42.00 per week.
Double rooms, running water—$10.00, $12.00, $14.00 per day.
Double rooms, running water—$56.00, $63.00, $70.00 per week.
Single rooms, private bath—$7.00, $8.00, $10.00, $12.00 per day.
Single rooms, private bath—$42.00, $49.00, $63.00, $77.00 per week.
Double rooms, private bath—$14.00, $15.00, $16.00, $18.00, $20.00, $22.00 per day.
Double rooms, private bath—$70.00, $80.00, $98.00, $112.00, $126.00, $140.00 per week.
NEW in construction and furnishings
OLD in hospitable tradition
COOK'S SONS CORPORATION

WEBSTER HALL
America's Finest Club Hotel
Pittsburgh, Pa.
Room with Running Water, $2.00 up
Room with Private Bath, $3.50 up
Ample Parking Space

STRAWBERRY PLANTS
Send $2.50 for 500 Aroma, Gandy, Missionary, Dunlap, Premier or Klondyke, etc. $3.75 per 1000. Millions to offer.
JOHN LIGHTFOOT, E. Chattanooga, Tenn.

Bonus for Live Rats



35c plus your money back, if Tempto Rat Killer fails to get them all. ONLY KIND, not a squill or other poison. Harmless to anything but Rats and Mice. Pests die outside.
Send no money—just your name to Imperial Labr., 1272 Coca Cola Bldg., Kansas City, Mo., for a large $2.00 Farm Size pkg. (makes 200 baits), for only one dollar, on 15-Days, Trial. If there is a live one left, the dollar you paid the postman (with postage) will be cheerfully refunded, plus 35c for your trouble. You risk nothing, so write today.

Books for Fruit Growers

THE PRINCIPLES OF FRUIT GROWING
By L. H. Bailey. The present edition is completely revised and includes much new knowledge for the aid of the fruit grower. It considers location and climate, planting, tillage, fertilization, and maintenance of the orchard and berry patch in full detail. Chapters also included on accident and injury, spraying with insecticides or fungicides, harvesting, grading and packing.
Cloth, 432 Pages, Ill., $2.50

ORCHARDING
By V. R. Gardner, F. C. Bradford and H. D. Hooker. A comprehensive survey of the entire field of modern fruit growing; a sketch of the functioning of fruit trees; an outline of the methods and problems of the fruit industry. The book opens with a discussion of tree structure, tree growth and fruiting habits, etc., and then takes up in logical sequence such topics as treating winter-injured trees, grafting, nursery practices, the place of pruning in orchard practices, orchard ills, spraying schedules, transportation and refrigeration, marketing, and a bird's-eye view of orcharding as a business.
311 Pages, Ill., $3.00.

THE NURSERY MANUAL
By L. H. Bailey. Completely rewritten and revised. The book is in two divisions. The first describes propagation by seeds, spores, separation, division, cutting, budding and grafting. The division on nursery practice lists the major diseases and insect pests, describes their injuries and gives control measures. The latter half of the book contains a nursery list of plants, giving propagation and cultivation methods for each.
Cloth, 456 Pages, Ill., $2.50

All prices postpaid. Send orders to
BOOK DEPARTMENT,
American Fruit Grower Magazine
53 W. Jackson Blvd., Chicago, Ill.

Luther Burbank's Work with the Apple

By JOHN T. BREGGER

ALTHOUGH it is generally known that Luther Burbank in his work in plant improvement touched on practically all of the deciduous fruits, it is not common information just what work he did with the apple. Measured by the number of variety introductions which were made, the results might be considered small, particularly in comparison with the work on plums, which is an outstanding contribution. For example, Dr. D. F. Jones of the Connecticut Experiment Station states that of 24 leading varieties of plums, more than half (14) are originations of Luther Burbank.

What is true of the plum, however, could not easily be true of the apple, in which the variety list of today or even 20 years ago does not offer so much chance of improvement. A new apple must have unusual merit to be accepted for commercial planting today in competition with the many fine varieties which have already made names for themselves.

Probably the outstanding introduction by Burbank of a new apple is the Goldridge, taking its name from the district where it was produced, a portion of the greater and famous Gravenstein apple section centered around Sebastopol. The "Goldridge" is a midseason seedling of Yellow Newtown and possesses most if not all of the valuable characteristics of that variety.

It is interesting to note that Burbank confined his apple breeding work along close lines, in a similar way to what is being done by our State experiment stations. The New York station at Geneva, for instance, has specialized in securing new seedlings in the McIntosh and Delicious groups. They have produced a McIntosh-like apple for every season of the year. Burbank chose for his main parents the Baldwin, Delicious, Rome Beauty and Yellow Newtown. He succeeded in producing, though few of the varieties were ever introduced, an apple of the Baldwin type for practically every season. He also partially accomplished this same thing for the other three varieties mentioned. In addition he was working for a red apple of the Yellow Newtown type, but this objective was apparently not realized up to the time of his death.

Burbank tested his new seedlings by top-working them as soon as possible to bearing trees, where they fruited in a few years and could be compared with standard varieties and other seedlings, all growing under similar conditions. Today, most of these large trees are still standing on his old Experiment Farm, innumerable varieties ripening throughout the season on the same tree, giving a succession of fruit which is more than a meager memory of the plant breeder who produced them. (Picture on page 22.)

"Crimps" Disease of Strawberries

By R. E. RICHARDS

DR. A. N. BROOKS, associate plant pathologist at the Florida Experiment Station, has found that the strawberry disease known in Florida as "crimps" is caused by a very small eelworm or nematode (*Aphelenchus fragariae.*) Dr. Brooks believes that crimps is the same as the "dwarf" disease of strawberries in Louisiana and the "red plant" disease in Great Britain. The nematode causing crimps is not the same as the one causing root-knot; it is smaller and can be seen only under the microscope.

Strawberry plant showing crimping of young leaves in center

Crimps causes a loss of strawberry plants in individual cases, up to 75 per cent of the crop. It annually destroys two per cent of the entire Florida strawberry crop.

Crimps is a bud disease, affecting the young leaves as they develop. The deformed leaves are crinkled or crimped, cupped and narrow, and have a reddish cast to the serrations, main veins and petioles.

The nematodes are carried over from year to year in the soil, and are washed into the plant buds by rain or irrigation water. In moist fields the nematodes can travel slowly from plant to plant; in inundated fields the spread is rapid. The nematodes are scattered widely by the removal and resetting of diseased runner plants from the nursery bed. Plants which recently have become infected do not show the symptoms of crimps and are used as healthy plants.

Dr. Brooks does not believe that a spray will be found which will control the trouble, due to the fact that the nematodes get into the plant buds. He says that "a satisfactory control of the disease may be accomplished by frequent inspections of the strawberry fields and the removal of crimped plants. The nematodes should not be allowed to escape from the buds and infest the soil. Especially should the runner beds be carefully watched. Crop rotation also may reduce the numbers of this specific nematode in the soil."

A Famous Orange Tree

IN THE nursery of "Fruitlands," on the outskirts of Augusta, Ga., stands a peculiar orange tree, which has had a more romantic history and is represented by more varied descendents than almost any other tree in this country. It is a thorny bush, green even in winter when its leaves are gone, and it looks more like a hedge-plant than an orange tree, in spite of the tiny yellow balls which ornament its branches.

When Japan was thrown open to the commerce of the West, its quaint plants and shrubs were among the first things to attract attention. Tiny orange trees, so small that they grew in tubs and could be set on a stand in an ordinary room, yet so perfect that they produced blossoms and fruit in season, and so gnarled that they were evidently very, very old, were brought to America to ornament the conservatories of plant lovers. American gardeners sought in vain the stock which was the basis for these dwarfs. The Japanese were willing to export the product, but they kept the secret safely at home. It was evidently a grafted tree, and from its seeds a variety of plants, none of them like the rootstock, were obtained.

Some of the earliest importations came to Fruitlands. Many died. One of those which died was thrown out on a heap of rubbish, became buried, and was forgotten. After awhile an odd plant was discovered to be coming up among the rubbish, and on investigation it was found that the dwarf tree had sprouted from the roots. Of course, all the fruit, and consequently the seeds of the plant, had come from above the graft, partaking chiefly of the characteristics of the bud instead of the root; but this new stalk came from below the graft and it was a bit of the genuine, long-sought stock.

That carefully nursed and guarded sapling is the odd-shaped bush in the Fruitland gardens. As soon as it began to bear fruit, its seeds were planted and guarded as carefully as the original stalk. Year after year all the seeds were planted, and even the seeds of the new plants, till at last the nursery was well stocked with the thorny *Citrus Trifoliata.*

Orchards all over the country, and, in fact, in all parts of the world where oranges are grown, are stocked with descendants of *Citrus Trifoliata,* although, of course, not all are from this stock so oddly obtained, for about the time this fortunate accidental discovery was made in Georgia, the secret had been wrested from the Japanese and seedlings were being sent here. (Picture on page 22.)

Merger of Food Machinery Makers

A MERGER of six manufacturing concerns, makers of equipment and machinery used in the fruit industry, was completed in San Francisco on September 14. The consolidated concerns will be known as the Food Machinery Corporation. The merger involves several million dollars and it will make available to each company many patents used in manufacturing washing machinery, canning machinery and sorting and conveying equipment.

The merging firms are:

Anderson-Barngrover Manufacturing Company of San Jose and Hayward, Calif., makers of canning machinery.

The John Bean Manufacturing Company, San Jose, Calif., manufacturers of sprayers and fruit washers.

The Sprague-Sells Corporation, Hoopeston, Ill., and Buffalo, N. Y., canning machinery manufacturers.

The Stebler-Parker Company, Riverside, Calif., manufacturers of citrus packing house equipment.

The Florida Citrus Machinery Company, Dunedin, Fla., makers of citrus packing equipment.

The Cutler Manufacturing Company, Portland, Ore., makers of deciduous packing house equipment. — *Henry Holdal, California.*

Paper Mulch Proves Satisfactory

(*From Page Six*)

the season are not yet complete, as most of the trees, both papered and unpapered, are still growing, but in general it would be fair to say that the papered trees show an average of six to eight inches more growth than the unpapered trees. Papered trees in some instances have made a growth of 24 to 28 inches, as against five to seven inches last year, with the same amount of fertilizer.

And, by the way, I might say that the fertilizer was applied previous to the paper. Next spring we plan to apply fertilizer as usual, on the assumption that there will be enough holes in the paper to allow the fertilizer to wash through.

Some of the six and seven-year trees which were papered bore a few apples this season and the fruit was a third larger than that from the unpapered trees adjoining, and the tip-growth was three or four inches better.

We papered two large trees having about four barrels of fruit each, with 12 feet of paper on one side of the trees and nine feet on the other and found very little difference in the condition of the fruit compared with that from the unpapered trees adjoining. The fruit is possibly a little larger, but not as good in color. The set of fruit was no better.

Conclusions May Have to Be Modified

Any or all of the conclusions we may draw from our experience this season may have to be modified another year. The paper was applied during the last week in May and the first week in June, during which time we had dry, warm weather, followed by a month in which we had plenty of rainfall. During late July and the entire month of August we had exceptionally dry, hot weather, and it was during this dry period that the papered trees made their gain over the unpapered trees.

The gain of tree growth on normally wet heavy soil has been surprising, as the trees on this type of soil normally make a good part of their growth during the early part of the season, forming a terminal bud early in August and starting growth again during the period of rains which we usually get in late August and early September. This season the papered trees have grown steadily with no check. What our conditions will be in the spring in regard to mouse damage or winter-killing on papered trees, we have no means of knowing, but expect to leave the paper on, for better or worse.

If we can draw any conclusions this season, it is that on our best soil, medium loam in good tilth, paper mulch is not justified, as trees on this soil have made as good growth as papered trees on poor soil. But on poor soil and on scattered trees among bearing blocks I feel that paper mulch has paid for itself this season in saving grubhoe labor, to say nothing of additional growth. And if the paper will stand up for three years, it will prove the best investment we have ever made.

"United Growers" Approved by Farm Board

THE FEDERAL Farm Board, in an official statement released August 27, gave formal approval of and endorsement to the United Growers of America, the $50,000,000 co-operative fruit and produce distributing organization. The statement follows:

"Arthur R. Jule, Julius Barnes, William M. Jardine and John Burgess, appeared before the Federal Farm Board August 23 and explained the organization set-up and the proposed plan of operation of the United Growers of America, a $50,000,000 corporation which has been organized for the purpose of offering to the small co-operatives of fruit and vegetable growers of the United States a national co-operative sales service and to encourage the organization of such groups in other communities.

"It was represented by these gentlemen that this organization was purely co-operative in character; that the dividends on both common and preferred stocks will be strictly limited to a reasonable dividend earning. The common stock which alone has voting power will be lodged exclusively with local grower-owned and controlled shipping units which will become members of the organization.

"In response to inquiries from the Board, it was represented that the service proposed was to take care of a greatly needed service to co-operative groups in the fruit and vegetable business whose individual output is not large enough to form the basis of a national sales system, or where crops move in such a seasonal way over a short period of time that it was not practical for these local and district associations by themselves to maintain a year round national selling organization and that through a combination of several of these groups scattered throughout the United States it would be possible to provide a selling service of salaried men in the terminal markets and in the other markets that would afford a more efficient and better selling organization than was available to them under present conditions.

"It was represented that the United Growers of America did not propose to enter the field in such a way as to interfere with areas where existing co-operatives have sufficient volume to maintain their own selling organization, or the future organization of them where it was possible to perform an equally efficient service for themselves.

"The Board is of the opinion that if this organization is operated along the lines as represented, it will perform a valuable service, especially to the areas now lacking such a service."

Supplementing this written endorsement, C. C. Teague, generally recognized as the Board's "strong man" on fruit organization, stated orally: "There will be two types of stock. This will consist of common stock, to be lodged exclusively with grower-owned and controlled shipping units to become members of the organization, and preferred stock, to be subscribed by a number of financiers.

Dividends on both varieties of stock will be strictly limited to a "reasonable dividend earning," according to the Board. Mr. Teague said he supposed such a dividend would be seven or eight per cent.

New York "G. L. F." Gets $50,000

THE FEDERAL Farm Board announced on September 5 that it has agreed to make a loan of $50,000 to Co-operative Grange League Federation Exchange, Inc., of Ithaca, N. Y., to be used for the purchase or construction of marketing facilities at a number of New York State railroad shipping stations.

These facilities are to afford grading, packing and loading service to farmer co-operative groups in the different communities, which are members of the federation.

The application for the loan sets forth that it is proposed to provide these marketing facilities at not fewer than 10 nor more than 15 shipping stations. The maximum cost of each unit will not exceed $8000. Of the sum used, the board will advance 50 per cent and the federation an equal amount, the government's loan to be secured by a first lien on the property.

H. E. Babcock, general manager, and other officers of the federation appeared before the Board August 12 and presented information on the character of their organization and the proposal to expand its marketing program. It was said the federation has some 35,000 farmer stockholders and serves about 80,000 patrons.

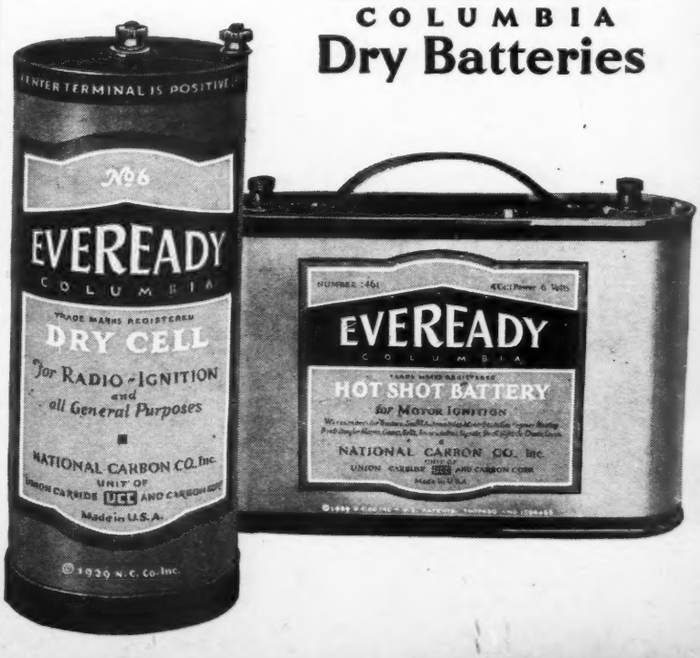
Mr. Babcock said that the federation's program calls for the establishment of only a few units at the outset, but later the service will be extended to other shipping points, thus enabling farmers throughout western New York co-operatively to provide themselves with the necessary facilities for marketing their agricultural products.

LONG LASTING

EVEREADY Dry Batteries always come packed with hot long-lasting power. These remarkable batteries actually renew their energy when not in use. That's why they last longer. After months and months of hard service their sparks still crackle like summer lightning over a dry cornfield. In the home, Eveready Dry Cells No. 6 are handiest. Outdoors, use the water-proof steel-cased Eveready Hot Shot Battery—absolutely unaffected by rain, snow or sleet. Stands rough handling.

NATIONAL CARBON CO., INC.
New York UCC San Francisco
Unit of Union Carbide and Carbon Corporation

EVEREADY
COLUMBIA
Dry Batteries



Fruit Farm Poultry

By RALSTON R. HANNAS

Fall Colds

MANY poultry keepers have had the experience of having colds break out among their new pullets that had only recently been housed in their winter laying quarters. If these eye colds were the only trouble, the condition would not be so bad, since they can be cleaned up fairly easily—a dose of Epsom salts in the drinking water at the rate of one pound per 100 birds will clear up colds in a short time.

However, it is the troubles that are apt to follow colds at this time of the year that complicate things. Roup, canker, chicken pox are diseases that usually follow. Any steps, therefore, that will enable the flock owner to avoid these colds are good investments.

Early housing is one of these steps. If poultry keepers can avoid leaving their pullets on range late in October, they will have taken a big step in the prevention of these colds, for it is the cold, damp nights that help to break down the resistance of the pullets. Good feeding is another step that will help considerably to prevent these colds by keeping them in the best of physical condition. Heavy feedings of grain, from 12 to 13 pounds per 100 birds per day, if they can be gotten to eat this much, will help toward this end. A good laying mash, of course, should be kept before them all the time.

The use of lights in the laying house will help immensely to maintain a good feed consumption and is therefore an aid to good health at this time of the year rather than a forcing method.

It goes without saying that houses should be comfortable, free from drafts and well ventilated. Insulated material is becoming very popular with poultrymen for use along the walls and ceiling to make houses warmer and to aid in ventilating.

What About Greens?

GREEN FOOD is one of the essentials in feeding not only the new pullets that are coming into production or that have only recently come into production but also in feeding the hens—last year's producers and next year's breeders. The supply on hand may be plenty with rape, chard, cabbage or other material, but what about the winter supply and the supply for early spring?

It is not too late in many sections, especially in the southern part of the country, to make fall seedings of wheat or rye for this green food supply for early spring. Turning the stock—either young or old—out into a yard of this will provide a nice lot of greens.

If the present supply of greens does not hold out until winter, legume hay, either clover or alfalfa, may be given the layers. It may be fed in a rack along the wall; the hens like the leaves. If hay is available now on the farm, save that with the most leaves and of the greenest color. Hens will eat it, however, whether it is green or not.

The addition of this hay will help considerably to increase egg production and hatchability. Alfalfa meal may be used if clover or alfalfa hay cannot be obtained; add it at the rate of five per cent of the ration.

Lights for Layers

FLOCK OWNERS want, naturally, to do the best thing for their layers in order to get them into the best of condition and keep them there and in order to get as many eggs from them as possible. The use of lights in the laying house in the fall, winter and early spring, together with proper feeding, is one of the best ways of doing this.

In spite of the fact that lights have been pretty generally used for several years, the question is often asked, "Is there anything to the use of lights with poultry to get more fall and winter eggs?" The answer is, "Yes," if they are used properly.

The use of lights may be begun in the fall as soon as the new pullets are placed in the laying house; this may be the first of October, the middle of October, or the first of November, depending on when the pullets were hatched and how they have grown. They are not used on pullets that are only half grown; on the other hand, it will do no harm to use them on pullets that have not as yet started to lay—in fact, lights will help pullets that are a little backward to get into better condition and into laying.

The object of the use of lights is to increase the length of the hens' day so they will have a longer time in which to eat—a 12 to 13-hour day will in the long run give better results than a longer day. This length of day includes both the length of time the artificial lights are used and the natural daylight. It makes no difference, in general, how this extra light is added as long as the same system is used at all times and no change is made. The lights may be turned on in the early morning before daylight and run until daylight, or they may be turned on at dusk and run for two to three hours after dark, or they may be turned on at about nine o'clock at night for a period of one hour.

Naturally, since a longer time is allowed the chickens to eat, something must be provided for them to eat. An extra feeding of grain at the rate of two pounds per 100 birds per day is fed. Dry mash is kept before them all the time. Drinking water must also be available all the time.

One 40-watt light for each 50 to 75 hens or for each 200 square feet of floor space will give good results as far as the amount of light is concerned. One important precaution to take in installing the lights is to see that the roosts are not in a shadow when the lights are turned on, else the birds will not be attracted off the perches readily. Also, where the ceiling of the laying house is high or not whitened, reflectors are often used to throw the light down on the floor.

Nests

Nests should be plentiful; they should be large, comfortable, well placed to make them attractive to the hen and well placed to be convenient for the flock owner in gathering the eggs. One nest for every five hens will provide enough nesting space so that the eggs need not be laid on the floor. When trapnests are used, the correct proportion is one nest for every three hens.

FALL BULBS for SPRING BLOOM

(From Page Seven)

Narcissi Are Classified

The narcissus, predominantly yellow, sets the tone of the spring garden and is probably the most popular bulb of all. It lends itself admirably to almost any type of planting—in perennial borders, rockeries, drifts in outer margins of shrubbery, or naturalized in large groups in the woods or wild garden. There are many kinds of narcissi, differing in size of the trumpet or crown, in color and in habits, and with a range of bloom from March until well in May. The classification by the Royal Horticultural Society of England is now accepted as standard. The most important classes are listed below:

Trumpet, long trumpet or crown, and divided into three color classes of yellow, bicolor and white. Emperor illustrates this class.

Incomparabilis, medium trumpet, as Sir Watkins.

Barri, short cups, as Conspicuus.

Leedsi, chalice cupped and short cupped with white perianth and cup, or crown of white, cream or pale primrose, as Mrs. Langtry.

Poeticus, snowy white perianth and flattened yellow crown, more or less covered with scarlet or crimson, as Ornatus.

Double, many petals instead of cups or trumpets, as Van Sion.

The most popular are the small cupped types, as Barri, Incomparabilis, Leedsi, and Poeticus, the latter being an especial favorite. These establish themselves better than some of the other types and live for years. Their greatest beauty is brought about only when they have been in one location for three years, after which they may be dug, divided and reset. Some growers advocate planting in drifts at the rear of borders among other later flowers requiring little or no cultivation, or naturalization in drifts among trees or shrubs. Ferns are a desirable companion for the naturalized narcissi plantings.

For naturalization and use in the border, the first choice would include Mrs. Langtry, Barri Conspicuous and Poeticus pheasant eye. If a more extensive selection is wanted, you may include Emperor, Empress, Giant Princeps, Sir Watkins and Double Van Sion, though the latter may grow green in the second year and after. These are time tested, reasonable in price, and good enough for the most exclusive garden. For planting in wet places, the Poeticus pheasant eye (the writer's favorite narcissus) and the *Alba plena odorata* are excellent.

All these varieties mentioned can be planted out-of-doors. The time to plant narcissi is as soon as they arrive. They like a rich, deep loam, and thrive best in a partially shaded position. They should be covered one and one-half times their own depth, measuring from the top to the base of the bulb. In transplanting in your own garden, dig them when the leaves have turned yellow and replant at once. It is a mistaken idea to cure narcissus bulbs, as it has been discovered that it is when they are out of the ground that they are attacked by disease.

Tulips Also Popular

Next to narcissi come tulips in popularity. They are commonly divided into two classes, early types and late types. Of the late types there are three outstanding classes—Darwin, Breeder and Cottage, each distinct as to origin, shape and color variations. There are various other kinds of tulips, including Bizarre, Bybloem, Rembrandt, Parrot, hydrids and various wild species.

The Darwins are the most outstanding and most important of all late tulips for outdoor planting. They are best marked in color. They are cheap in price because they are easily produced. They will grow and multiply and bloom riotously even under poor soil conditions.

The Breeder tulips are the type that came out of France years ago and from which the Darwins have been developed. They resemble the Darwins but their majestic size and remarkable colors put them in a class all their own.

The Cottage or May-flowering tulips come into bloom in early May, after the early singles are gone, and they are distinguished for long life of most varieties and for pleasing informality. They are hardy and robust, with long and slender but stiff stems. They are the best type for cut flowers. Their flowers are mostly long and oval, with petals reflexed gracefully. They do best when planted out-of-doors. Cottage tulips as a class are rich in the more delicate and artistic shades of yellow, orange and fawn, with salmon, old rose and amber colors.

Good Varieties Listed

Recently there has been a great deal of hybridizing between Cottage and Darwin tulips with amazing results, as shown by the long list of catalog offerings. The most outstanding is Ambrosia, which is considered by many the most exquisite tulip in existence because of its purity of color, grace and pliability of stem. Another excellent hybrid is Dido, unusual, fragrant and magnificent.

Single early tulips, formerly much in vogue, are not being used so much, with the possible exception of DeWet, a beautiful orange. We now prefer the double when we want early outdoor tulips, as they are stronger and more colorful. The best varieties are Boule de Neige (white), Mr. Ven Der Hoef (yellow), Murillo (delicate pink) and Vuurbank (bright scarlet).

We can only mention other varieties. The best of the Parrots are Cramoisi, Brilliant, Lutea Major and the straight-stemmed Fantasy, a "sport" from the popular Clara Butt. The lily-flowered are distinct in type. Monsieur Mottet is a unique bunch-flowered tulip.

Tulips should not be planted before October 15, and in many localities not until early November. They should be planted three to six inches deep, depending on the soil. In clay, plant an inch less than in a sandy soil.

Hyacinth Old Favorite

Then come hyacinths, known to all of us because of their characteristic fragrance and form. When buying these it is most economical to purchase second or third size bulbs, as the first size are too costly except for exhibition purposes, and then too, the flowers are so heavy they topple over from their own weight. Larger size merely indicates greater age, as it takes from four to five years to produce a first size. Hyacinths should be planted as soon as received, six inches deep, measuring from the bottom of the bulb, and six to seven inches apart. They like a sandy, light soil, well fertilized with thoroughly rotted manure, or, better still, bonemeal. After blooming, the flower spike should be cut completely away.

The true harbingers of spring are the small, early-flowering bulbs, such as winter aconite, Crocus, snowdrop, Siberian quill, glory-of-the-snow, and grape hyacinth. Winter aconite is very hardy since it begins to send up its characteristic bright yellow bloom as soon as the frost leaves the ground. It will grow under trees and shrubs, as it likes a partly shaded position.

Crocus Is Useful

Little need be said about the Crocus here as it is familiar to everyone. It will grow anywhere under almost any conditions. There is one caution—do not scatter plants throughout the lawn and then mow off the tops, as they need to ripen naturally if the plants are to multiply. Crocus lend themselves admirably to naturalization in drifts, to pockets in rock gardens and to perennial borders. The snowdrop is a shade lover and must be planted where the sun cannot reach the roots. The bulbs are small and should be set close together in drifts and under three to four inches of soil. Both the Siberian quill and the glory-of-the-snow are a delightful blue color. Grape hyacinths are in several pastel colors.

It is suggested that such ground cover plants as dwarf Sedums, Arabis, Iberis, Phlox subulata, Arenaria and thyme be planted in groupings and masses, together with the small early-flowering bulbs such as were discussed in the last few paragraphs. Then the foliage of the declining bulbs will be quickly hidden by the low-growing perennials.

Drainage Most Important

As to general directions for planting bulbs, whatever the kind, they may be placed in any good soil which has been well prepared. Bonemeal is the most desirable fertilizer. The greatest danger to all bulbs is poor drainage, or "wet feet." If your soil is not well drained, you must especially prepare entire areas before planting. For this open a little hole in the ground slightly larger than the bulb and one-third deeper than you expect to plant the bulb. Into the bottom of the hole place cinders or gravel to come half way up to the bottom of the bulb. Onto this loose material sift fine sand, and on this cushion set the bulb. Then fill in the earth so that it is on all sides of the bulb but not beneath it.

Any bulb is thankful for some winter covering, especially the first winter after being planted. Good clean straw is better than strawy manure. Leaves pack too tight and watersoak, so they are undesirable. The covering should not be put on until after the ground is frozen (in climates where it freezes) as mice and moles have an opportunity to get in. Bulbs should be uncovered as soon as possible in the spring.

A Basic Trouble of a Great Apple Region

(*From Page Five*)

at Winchester, Va., over a period of six years indicate that out of an average cull production of 41.5 per cent, approximately 29 per cent, or 70 per cent of the culls, was due to causes preventable by the apple grower. Of these preventable causes, diseases and insect injuries were of lesser importance than the lack of standard orchard practices, such as pruning, thinning, fertilization, picking and handling. Diseases and insect pests accounted for 12.5 per cent of all the culls, while the lack of good cultural practices accounted for 16.5 per cent. It was found that in average years approximately 12.5 per cent of the cull pile was due to causes beyond the control of the grower. Such causes were hail and frost injury, sun scald, fruit spots caused by physiological troubles resulting from an improperly balanced water supply for the trees, and, finally, such losses from disease and insect injury which even the best kind of spraying would not control.

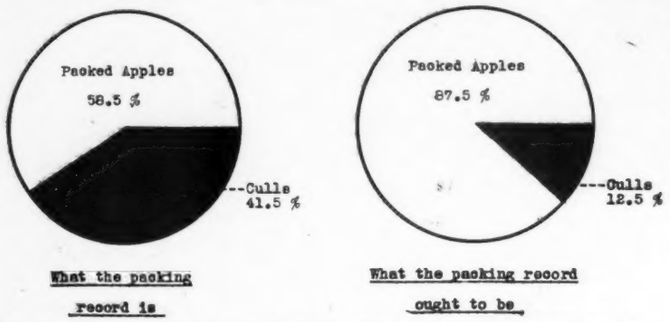


Fig. 1. The packing record of over twenty-five million pounds of apples in the Shenandoah Valley and what this record ought to be in the best managed orchards.

In Figure 2 we have a diagrammatic presentation of an average analysis of the culls in this apple section. This diagram ought to be of interest to fruit growers who read AMERICAN FRUIT GROWER MAGAZINE because it gives as close an approximation of the causes of cull apples as we have been able to find for this district. The data represent an average and it should be understood that a wide departure from this average may occur in certain years.

In the apple belt which we are discussing, the apple by-products business is in flourishing condition for reasons that are apparent from the discussion above. The average annual tonnage of cull apples handled in Winchester alone is approximately 60,000,000 pounds. Of this tonnage, approximately half are canners and half ciders. The average price of canners has been from 80 cents to $1.10, while the price paid for cider apples has been approximately 40 cents per hundredweight during the past seven years.

The Cumberland-Shenandoah apple belt, according to federal statisticians, has a potential production of 10,000,000 barrels of apples, with the very low average yield of one barrel per tree. It is evident that this apple section has a possibility of producing more than a fourth of the total production of the United States. A conservative estimate by an expert employed by one of the largest by-products companies indicates that in average years approximately one to one and a half million barrels of apples go to the by-products plants in this district. These cull apples are used to manufacture vinegar, apple butter, apple sauce and jellies, while the pomace is used by pectin manufacturers or for dairy feeding.

We have just pointed out that approximately 70 per cent of these cull apples or 29 per cent of the total crop, could have been packed if the growers had given more careful attention to their business. We shall not attempt to put down figures of the incidental losses involved in selling apples to by-products plants instead of packing them in barrels and other containers. Such figures showing the aggregate losses in an area with the production of the Cumberland-Shenandoah section would be staggering. We have had a surplus of all sorts of apples in 1926 but not of good apples. We have had an over production of cull apples but not of the fancy stuff. The rapid growth of the apple by-products business in the Shenandoah Valley is a monument to the failure of our growers to raise fruit of such quality that approximately 85 to 90 per cent could be packed and sold as apples instead of vinegar and apple sauce.

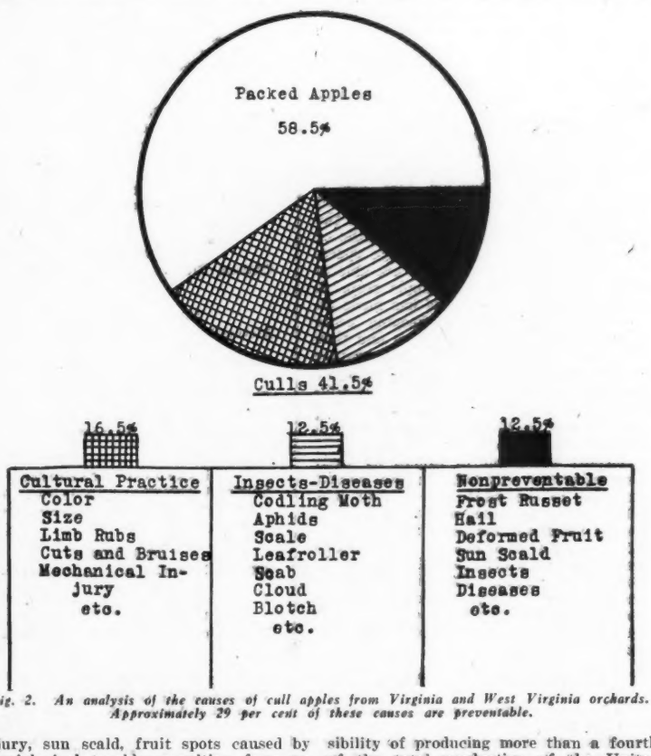


Fig. 2. An analysis of the causes of cull apples from Virginia and West Virginia orchards. Approximately 29 per cent of these causes are preventable.

Fixing the Blame for Our High Production of Culls

The reader is referred to the picture showing the huge pile of cull apples. There are 2,000,000 pounds of apples in this pile, and in the bins in the background there is an additional million pounds. Anyone who has seen cull apples unloaded at the rate of over a million pounds per day over a period of a month or more as the writer has in recent years at Winchester, cannot fail to be impressed by the tremendous disadvantage our apple business is laboring under as a result of slipshod methods of growing.

One might be inclined to place all the blame on the apple grower for this situation, but this would not be entirely fair. The apple grower has been the victim of hard circumstances in past years which have resulted in a series of crop failures over which he has had no control. The resulting financial embarrassment from these failures and the fact that most of our growers do not practice diversified agriculture has prevented them from buying spray rigs, spray materials, fertilizer, and labor necessary to carry on orchard work successfully. *But in spite of these uncontrollable factors, the apple grower has been largely to blame for the high percentage of cull apples he raises.*

Experimental work and results obtained by the best growers in this district indicate that as high as 95 per cent of the total tree crop has been packed in especially favorable years. To do this the grower must apply every spray in the calendar, and he must use the very best cultural practices.

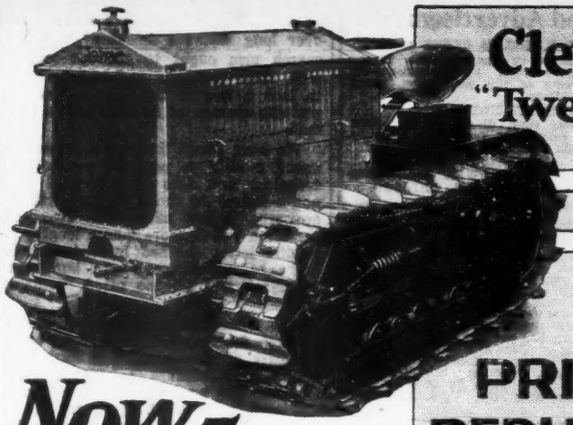
The best growers in this section rarely fail to pack less than 85 per cent of their tree crop but, as mentioned before, these growers play the game according to Hoyle. They are properly equipped to do timely and thorough spraying and most of them follow the State spray service recommendations to the letter. The most successful apple growers are unanimous in their declaration that proper and timely spraying with materials of proven value will largely solve the cull problem.

It is self evident that a grower cannot sell apples unless he grows them, and he certainly cannot expect fancy prices for apples that are anything but fancy. It should, therefore, be apparent that low production of marketable apples goes to the root of the marketing problem.

Improvement Being Made

All of this sounds like old-fashioned experiment station and extension preaching. We admit it, and we admit further that it is the only method we know of to bring our growers to the full appreciation of a problem that can be solved by themselves alone. But there are signs of considerable improvement especially during the past three years when most of the growers have made some money and have invested it in much needed equipment and materials for use in orchards. Our second raters have been observing the topnotchers and have imitated them with gratifying results.

The writer, who has been an experiment station employee for a number of years, realizes fully that not all experiment stations have been as helpful to apple and other fruit growers as they might have been. It is probably true that there has been too much swivel chair and long distance scientific work in our colleges. We need more decentralization of research from headquarters to field quarters where things happen in the



Cletrac "Twenty"

Now—

PRICE REDUCED $200.00

more than ever the biggest tractor value you can buy!

Big volume production always creates lowered manufacturing costs—and with sales of the famous Cletrac "20" running steadily beyond all previous figures, a big price reduction of $200.00 is being passed on directly to every buyer.

For orchard work—for all the field jobs on the farm from plowing time to harvest—no other farm tractor offers you greater value or more profitable utility than this sturdy Model "20" Cletrac. Right in size—right in power—exceptional in its new low price—the Cletrac "20" warrants your immediate and thorough consideration.

See your Cletrac dealer or write direct for the big illustrated book that tells in detail why Cletrac is the outstanding favorite of thousands of farmers and fruit growers all over the world.

THE CLEVELAND TRACTOR CO.

19301 Euclid Ave., - - CLEVELAND, OHIO

Classified Advertisements

ADVERTISING RATES, 15 CENTS A WORD

Write advertisement on separate sheet. Please enclose cash with order. For advertisements addressed in care of this publication, allow 5 words for address.

SPECIAL NOTICE

All advertising copy, discontinuance orders or change of copy must reach this office by the 10th of this month for next issue.

Address
AMERICAN FRUIT GROWER MAGAZINE
53 West Jackson Boulevard, CHICAGO

AGENTS-SALESMEN WANTED

PAYING POSITION OPEN—I'LL PUT MONEY in your pocket and make your income grow continuously if you will use all or part of your time looking after my business. I'll put you in a business where every man, woman and child is your customer—for everybody must have shoes and hosiery. I'll supply all you need to start in at once making $15 per day and increase your pay every month. Complete sample outfit of actual shoes and hosiery. Million dollar stock to deal in. Free book, "Getting Ahead," will surprise and delight you. Write for it today. Wm. J. Mishel, Tanners Shoe Mfg. Co., S. 24010 C St., Boston, Mass.

$12.00 DAILY SHOWING NEW LINEN-LIKE tablecloth. Washes like oilcloth. No laundering. Sample free. Bestever, 666 Irving Park Station, Chicago.

MAKE $45 A WEEK AND EXPENSES. FREE auto or bonus offer to regular agents introducing poultry and stock compounds. Imperial Co., D-20, Parsons, Kans.

BIG MONEY DAILY, SELLING SHIRTS OF all kinds, lumber jackets, underwear, hosiery, sweaters, playsuits, overalls, pants, raincoats, leather coats. Outfit free! Experience unnecessary. Nimrod Co., Dept. 102, 4022-28 Lincoln Ave., Chicago.

AGENTS $6 DAY MADE BY OUR SALES agents. Sell finest line guaranteed hosiery you ever saw. All styles, colors. Finest silks. Commission earned daily. Spare time satisfactory. Ford car given to producers when earned. Silk hose for your own use. Write for samples. Wilknit Hosiery Co., Dept. 2904, Greenfield, Ohio.

AGENTS—MY SUPERIOR PROPOSITION OFfers you a wonderful opportunity to make $15 a day, any day in the week. Easy work. New Ford sedan free to producers. Albert Mills, 3822 Monmouth, Cincinnati, O.

STAIN REMOVER—SOMETHING NEW AND different. Guaranteed for cleaning rugs, carpets, suits and all kinds of fabrics. To introduce, will send regular large $1 bottle with directions, postpaid for only 70c. Y. S. McMurray, Sallsville, Ohio. Agents wanted.

WANTED—MAN WHO KNOWS FARM LIFE TO travel in country. Steady work. Good profits. McConnon & Company, Room A-1410, Winona, Minn.

CIDER PRESS FOR SALE

LARGE CIDER PRESS—HYDRAULIC ENGINE. E. Dannies, Starr Ave., Burlington, Ia.

DOGS FOR SALE

COONHUNTERS, DEPOSIT YOUR MONEY AND try my 4-year-old coonhound. I pay all express. Bob Finley, S-88, Charleston, Mo.

DOGS FOR SALE

HUNDRED HUNTING HOUNDS CHEAP, TRIAL. Literature free. Dixon A-3, Herrick, Ill.

FARMS AND ORCHARDS

FOR SALE—FRUIT FARM—APPLES, GRAPES —70 acres—southern Kentucky. Bowling Green. Address Herdman & Stout, Agents.

TWO COMMERCIAL ORCHARDS, SELL OR lease. Kinsima Orchards, Alma, Ill.

640 ACRES ORCHARD AND STOCK RANCH. Junction two state roads. 1500 apple trees in bearing, set buildings. Price $12.50 acre. T. W. Campbell, owner, Dixon, Mo.

SOUTH CAROLINA FOODS AND THE GOITER problem! Medical authorities recognize iodine as being a powerful preventive of goiter. South Carolina farms produce wood products, vegetables and fruits, high in iodine content. Tracts of 50 to 500 acres may be purchased on attractive terms. Write N. B. Gamble, Box 1318, Columbia, S. C.

BOOK OF 1000 BARGAINS—STROUTS NEW Farm Catalog, over 1000 selected properties, 1000 pictures. Money-making equipped farms, all kinds, all prices, easiest terms; country homes, main-highway businesses. Saves you money and time. Copy free. Strout Agency, 255-AY Fourth Ave., New York City.

FARMS WANTED

WANTED—TO HEAR FROM OWNER OF LAND for sale for fall delivery. O. Hawley, Baldwin, Wis.

WANTED—HEAR FROM OWNER HAVING good farm for sale. Cash price, particulars. John J. Black, Chippewa Falls, Wis.

CASH FOR YOUR PROPERTY, FARM, BUSIness or residence. No matter where located. Free information. International Realty Co., Ford Bldg., Detroit.

FUR RABBITS

MAKE BIG MONEY WITH CHINCHILLA Rabbits. Real Money Makers. Write for facts. 846 Conrad's Ranch, Denver, Colorado.

HELP WANTED—INSTRUCTION

WANTED IMMEDIATELY, MEN-WOMEN, 18-55, qualify for steady government positions; $105-$250 month; common education; no government experience required; vacations with pay; many needed soon. Write, Instruction Bureau, 259, St. Louis, Mo., quickly.

MAIL CARRIERS-POST OFFICE CLERKS, $1700-$2300 year. Steady work. Men, 18-45. Frequent examinations. Common education. Particulars free. Write immediately. Franklin Institute, Dept. C-71, Rochester, N. Y.

NURSERY STOCK

FOR SALE—ORNAMENTAL TREES, SHRUBS, perennials, garden plants and bulbs. Send for list. Scott & Peterson, Florists, Geneseo, Ill.

PEACH AND APPLE TREES, $5.00; $7.50 PER 100 and up. Yellow Delicious and Blood Red Delicious apples. In small or large lots. Plums, pears, cherries, grapes, nuts, berries, pecans, vines, ornamental trees, vines, evergreens, shrubs. Free catalog. Tennessee Nursery Company, Box 101, Cleveland, Tenn.

fruit game. There is not much virtue in attempting to conduct a spray service over long distance telephone. Our research men ought to get out and live with their problems and not be averse to look a bug in the face or note the periodic ejection of fungous spores in the field.

We have found that apple growers respond readily to personal contact with technical men who have learned to be non-technical in their dealings with the growers. A few minutes of direct conversation will do more than a lengthy and erudite letter couched in high sounding language, sometimes vague but mostly terrifying and all too often "professorish."

The writer does not wish to make a blanket denouncement of all or even a majority of men engaged in agricultural college work, because that would be quite unfair. The work of such men is of inestimable value to the growers, but now and then a young fellow fresh out of school gets a job at an experiment station and cuts loose with the longest letters ever dictated, because dictation is a new experience and pleasant, but—the growers receiving these long and serious efforts are not only amazed but unrequited.

We have seen how the sub-station idea works in Virginia and West Virginia and we feel that such stations ought to increase in number because they are in immediate touch with a large number of orchards and the men in these field stations live with their problems and usually do effective and useful work.

In conclusion, we wish to point out that one of the basic troubles of the apple business in the Cumberland-Shenandoah district, namely, the low percentage of marketable fruit, will never be solved by any special federal aid to them. Their salvation must be worked out by themselves, with such aid and advice as may be supplied by technical fruit specialists employed by the State or federal government and commercial concerns. Hard experience and the will to learn the best methods of apple growing will probably be the main factors in ushering in the new regime of higher yield per tree and higher yield of apples that can be packed in barrels or other containers.

The apple growers in this district have many natural marketing advantages, and they have made great strides in their business and some day not so far off, when they learn how to raise a higher percentage of quality fruit, you will hear more about the Cumberland-Shenandoah apple belt.

The Market Review

(*From Page* 11)

organization and the Federal Grape Stabilization Corporation. The basic rate of the advance to be made on raisins will be 3c per pound, which is something more than double the amount advanced to growers last year. For the first time since 1921, there is no great carry-over of raisins and there has been a steadily increasing consumption of this product. It is felt that the stabilization of the grape industry in California will have a beneficial effect on the prices of grapes in all other States, as 90 per cent of the total crop is produced in California.

New York Peaches Active

The peach season in southern Illinois closed with a record of 4600 cars by rail, compared with 1975 last year. Michigan was becoming quite active by mid-September, and early shipments were starting in New York State. Colorado, Washington, and California, however, were still the leading sources of supply in September. California's output has been less than half as heavy as a year ago. Colorado had a fair-sized crop of good quality, large fruit. Cool weather delayed the ripening of peaches on the Western Slope, and the peak day's movement was not reached until the 12th of the month. Michigan shipments were much heavier than last year at the opening of the season, but the final total will fall short of the 1928 record in that State.

The size of New York peaches was restricted somewhat by drought, but in general a fair crop was expected there and the market supply usually reaches a final bulge during the New York season. Prices were considerably higher than last season, best Elbertas ranging $1.75-$3.75 per bushel basket in consuming centers. Some speculation was evident in the handling of the Michigan crop, and f. o. b. prices in that State were pushed up to top of $2.50 per bushel. Western Colorado shippers were getting $1.65 on bushel baskets or 70c-80c per box. Total movement was rapidly increasing during early September.

Eastern Apples Abundant

Apple shipments from eastern States were much more plentiful than those from the West, and the total to date from eastern and mid-western areas is nearly equal to last year's corresponding figure. During the opening week of September, about 1675 cars moved, of which only 390 came from the West. But forwardings were fast gaining everywhere, with Washington, California and New Mexico leading in the West, and Virginia, West Virginia, Illinois, Michigan and New York the most important sources in the East. About two-thirds of the eastern supply was originating in the Virginias. Drought affected the Washington crop.

Shippers in the Potomac Valley area were getting $5.50 per barrel of best Grimes Golden, with poorer grades down to $4.50. Delicious and Jonathans brought $6. Bushel baskets or tubs averaged close to $1.75 f. o. b., the same as Wealthys in western New York and southwestern Michigan. These price levels were much higher than those of a year ago. Some contracts for U. S. No. 1 Jonathans in Kansas and Missouri were reported at $6.50 per barrel, packed in the orchards. Early sales of Extra Fancy, medium to large Delicious in the State of Washington were made on an f. o. b. basis at $2.35-$2.50 per box, with Jonathans, Staymans and Winesaps around $1.75 and Romes at $1.50. City sales of eastern fruit were mostly at $1.50-$3.50 per bushel, the higher levels pertaining to mid-western Jonathans and eastern McIntosh.

One of the farm journals of Idaho recently stated that "horticultural experts announce that every day apples stay in the orchard after picking they lose a week of cold-storage keeping quality. Cold storage makes it possible to distribute the apple and pear crops over 12 months of the year. Because of cold-storage space, Wenatchee and Yakima alone are able to hold nearly half of their apple crop. A western agricultural college has made an interesting experiment of keeping pears at a temperature of 31 degrees and then ripening them at a 65-degree temperature before removing. This experiment shows that Bartlett pears will keep in cold storage six months; Bosc, three months; Comice, 100 days; D'Anjou, to March 1, and Winter Nellis, to May 1."

Export movement of apples by early September was only half the total volume exported to the same time a year ago. Those shipping apples to foreign markets should remember the increasing tendency of European countries to require that packages be plainly marked to show the country of origin. British regulations made this obligatory beginning last season, and now apples shipped to and sold in Denmark must be marked "Of foreign origin."

Good Prices for Pears

The much lighter crop of pears this year in many of the important producing sections was resulting in relatively high prices. Bushel baskets of New York and Michigan Bartletts and Clapp's Favorites were jobbing in terminal markets at $2.50-$3.25, with the f. o. b. level of best Bartletts around $2.75. Seckels in western New York brought a similar price. Colorado Bartletts ranged up to $4 in one or two cities. Illinois Kieffers brought $1.75 in Minneapolis. Extra Fancy Bartletts returned $2.40-$3 per box at Pacific Northwest shipping points, with Anjous averaging $3.25. Demand in the East was not very active, and some fruit was going to storage or to canneries. The Michigan crop is very short. Canners there were offering to contract two-inch minimum Kieffers on a basis of $2.25 bulk per 100 pounds.

CLASSIFIED ADVERTISEMENTS
(Continued)

BEST VARIETIES, APPLE AND PEACH TREES low as 5c, grape vines 3c, ornamental shrubs 10c, evergreens 25c. Catalog free. Benton County Nursery, Box 100, Rogers, Ark.

PLANTS WANTED

WANTED—MASTODON AND OTHER STRAWberry plants. Quote prices. A. B. Katkamier, Macedon, N. Y.

TREE PROTECTOR

"SAVTREES" — SOMETHING NEW. USE against mice and animals. Write George J. Weber, Attleboro, Mass.

POSITION WANTED

EXPERIENCED COLLEGE TRAINED ORCHARD manager wants job in Kentucky or Ohio. Address Box 101, American Fruit Grower.

POULTRY

WHITE LEGHORN HENS AND MALES NOW half price. Thousands of laying pullets. Also baby chicks and eggs. Trapnested, pedigreed foundation stock, egg bred 29 years. Winners at 20 egg contests. Records to 320 eggs. Catalog and special price bulletin free. 1 ship C.O.D. George B. Ferris, 922 Union, Grand Rapids, Mich.

SONG POEM WRITERS

SONG POEM WRITERS. "REAL" PROPOSItion. Hibbeler, D-96, 2104 N. Keystone, Chicago.

A DIFFERENT PROPOSITION FOR LYRIC writers. Al Dion, Cohasset, Mass.

Index to Advertisements

The concerns whose advertisements appear listed below are equipped to give prompt and satisfactory service to the American fruit grower. Most of them issue literature that is freely at the disposal of our subscribers. It is to the advantage of all that when writing to an advertiser you use the address exactly as it appears in the advertisement, and that you state in your letter: "I read Your Advertisement in AMERICAN FRUIT GROWER MAGAZINE."

ARMY GOODS
Francis Bannerman Sons..... 14

AUTOMOBILES
Buick Motor Co. (Marquette)..... .....Second Cover
Oakland Motor Car Co. (Pontiac).. 9

AUTO TRUCKS
Chevrolet Motor Co.....Third Cover
International Harvester Co..... 11

BATTERIES
National Carbon Co., Inc.....4, 17

FERTILIZER
Chilean Nitrate of Soda Educ. Bur. 10

FRUIT PACKAGES
Pierce-Williams Company 12

HOTELS
Chalfonte-Haddon Hall 12
Seaside Hotel 16
Webster Hall Hotel 16

INSULATING MATERIAL
Celotex Company 15
Insulite Company 13

LOG SAWS
Ottawa Mfg. Co. 14

MUSICAL INSTRUMENTS
Buescher Band Instrument Co..... 12

NURSERY STOCK
Stark Bros. Nurseries Co..... 14
Tennessee Nursery Co. 12
John Lightfoot 16

RAT KILLER
Imperial Laboratories 16

SPRAY HOSE
Quaker City Rubber Co. 14

SPRAY MATERIALS
Sherwin-Williams Co. .....Back Cover

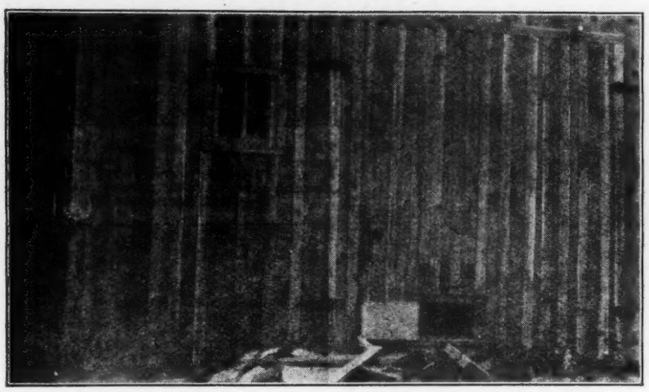
TRACTORS
Cleveland Tractor Co..... 19

WATCHES
Studebaker Watch Co. 12

Efficient, Low-Cost Storage

(*From Page 15*)

ber 12 inches from the original wall, then packing the 12-inch space on each side and above with sawdust, which had been dried in the sun for several days. Three two by three-foot ventilators were cut near the ground level and two ceiling ventilators, two by two feet, were left in the ceiling, with air shafts extending from these ceiling vents to the roof. This storage was quite satisfactory. The main objection to this type of construction is



A tobacco barn remodeled into an apple storage. Note the 18 by 36-inch cool air intake. This house holds over 2000 bushels. It cost less than $250 to remodel and more than paid for itself the first year of its operation.

that the sawdust will invariably cause the board walls to rot in less than five years.

Managing the Storage

Low temperature, thorough ventilation and ample humidity are three essential storage factors. By studying the United States weather reports and taking advantage of the variation of temperature during the evening and early morning, satisfactory results can be expected.

The storage operator often has considerable trouble keeping the temperature within the house cool enough. In fact, this condition is the weakness of the air-cooled building as a fruit storage. Yet by giving special attention to opening and closing the ventilators, this objection can be largely overcome. During September, October and November, the difference between day and night temperatures is considerable. During the fall, the house can be completely opened during cool evenings and left open all night, thereby cooling off the fruit to the temperature of the night air. About sunrise, both the inlet and outlet shafts must be tightly closed and kept closed until the next cool night, when the outside temperature is lower than that within the storage.

Use of Ice

Realizing that the extremely hot days and nights of early fall are the limiting factor with an air-cooled storage, it is now a quite common practice to construct a crude ice bunker near the middle of the house and by means of several tons of ice, the amount depending on the size of the storage, the temperature can be held several degrees cooler during the warm fall months.

This has already been true this year. Grimes, Delicious and Jonathan were picked in late August while the nights were hot. The price paid for a few truck loads of ice was no doubt worth many times the cost.

Placing the Fruit in Storage

During hot days the fruit should not be placed in the storage as it is picked on account of increasing the temperature within the house. The fruit should be picked, set in the shade and left outside to cool until early the following morning, then placed in the storage and the door closed.

Regardless of the kind of container used, it is best to construct a false floor six or eight inches above the regular floor, on which to stack the crates. At least six inches of space should be left between the wall and the crates or boxes for the circulation of air.

A thermometer is a necessary part of the simple equipment for operating a storage house. A common 35-cent thermometer may serve the purpose, yet with this instrument we have no way of knowing how hot or cold it may have been since we last read the temperature. A number of fruit growers have found it an economical investment to buy a Maximum-Minimum thermometer, which costs approximately $5. This instrument has a double mercury column and registers the highest temperature of the house in one column and in the other the lowest temperature that has occurred in the house since the operator's last visit. Any person who can read the temperature on a common thermometer can easily understand how to us this Maximum-Minimum type.

Preventing Sweating of Fruit

A rather strategic time of operating the storage is immediately following a cold period. The storage may have been holding a 32 to 38 degree temperature when rather suddenly the outside temperature reached 70 to 80 degrees during the day. With such weather changes, unless special care in ventilating is given, the fruit will sweat, or, in other words, drops of moisture will collect on the apples. To prevent this condition, the ventilators should be kept closed day and night for a few days until the inside temperature gradually increases.

Sow Lawn Grasses in the Fall

A GOOD TIME to seed new lawns or improve old ones is in the early fall, according to specialists at the Wisconsin College of Agriculture.

When grass seed is sown during the early fall it has a better chance to get an early start the following spring, thereby assuring a good growth of grass. If grass seed is sown in the spring, it usually does not give a good cover until the following year, but fall seeding avoids this difficulty to a large extent, the specialists point out.

Grass sown in early fall gets a start that is sufficient to carry it through the winter without damage. It is then ready to start growing just as soon as the ground thaws in the spring.

Success with lawns depends, to a large extent, on the selection of good seed mixtures and preparation of the seed bed. Home mixing of grass seed assures one that the proper grasses will be sown. Two parts bluegrass and one part redtop sown at the rate of one-half ounce per square yard gives good results. If desired, a small amount of white clover seed may be added to the mixture.

Old lawns may be improved by sowing some seed on the surface of the soil. New plants growing from this seeding will thicken the turf.

It is often desirable to use some fertilizer on the lawn, say the specialists, and mixed fertilizers that are readily available are most effective. Nitrogenous fertilizers, such as nitrate of soda and ammonium sulphate, speed up growth early in the spring, but bonemeal, cottonseed meal or some good phosphate carrier are also very beneficial.

The soil and fertilizer should be thoroughly mixed, then the seed sown on a well prepared bed.

add vegetable profits to your fruit income

The publishers of AMERICAN FRUIT GROWER MAGAZINE issue another magazine, similar in size and shape to this, devoted exclusively to the growing and marketing of

Watermelons Cantaloupes
Tomatoes, Potatoes, Beans
Cabbage, Cauliflower, Onions
Lettuce, Cucumbers, and other
COMMERCIAL VEGETABLE CROPS

American Produce Grower

covers the problems of commercial vegetable production and marketing in the same thorough, practical manner as American Fruit Grower Magazine covers the subject of fruit growing. The Editorial Advisory Board comprises the leaders of the industry, and their years of experience and research are at your service in the pages of AMERICAN PRODUCE GROWER.

These Experts Offer Service to You

H. F. TOMPSON, Managing Editor

C. L. ISBELL, Alabama
M. F. WHARTON, Arizona
J. R. COOPER, Arkansas
E. R. SANDSTEN, Colorado
A. E. WILKINSON, Connecticut
G. F. GRAY, Delaware
C. C. VINCENT, Idaho
CHARLES E. ABBOTT, Florida
JOHN R. FAIN, Georgia
H. D. BROWN, Indiana
E. S. HABER, Iowa
WALTER B. BALCH, Kansas
JOHN S. GARDNER, Kentucky
H. B. SINGLETARY, Louisiana
J. H. WARING, Maine
FRED W. GEISE, Maryland
RAY M. KOON, Massachusetts
GEORGE E. STARR, Michigan
FRED A. KRANTZ, Minnesota
J. C. C. PRICE, Mississippi
J. T. QUINN, Missouri
F. M. HARRINGTON, Montana
H. O. WERNER, Nebraska
ROBERT STEWART, Nevada
J. R. HEPLER, New Hampshire
L. G. SCHERMERHORN, New Jersey
FABIAN GARCIA, New Mexico
F. O. UNDERWOOD, New York
ROBERT SCHMIDT, North Carolina
A. F. YAEGER, North Dakota
ROY MAGRUDER, Ohio
GEORGE W. COCHRAN, Oklahoma
A. G. B. BOUQUET, Oregon
W. B. NISSLEY, Pennsylvania
G. E. ADAMS, Rhode Island
A. M. MUSSER, South Carolina
N. E. HANSEN, South Dakota
J. A. McCLINTOCK, Tennessee
F. M. LYLE, Texas
GEORGE STEWART, Utah
MARSHALL B. CUMMINGS, Vermont
L. B. DIETRICK, Virginia
CHESTER L. VINCENT, Washington
K. C. WESTOVER, West Virginia
JAMES G. MOORE, Wisconsin
A. F. VASS, Wyoming

Invest a dollar in *Dependable* Information

If you are growing vegetables—
If you contemplate growing vegetables—
If you have some acreage suitable for growing vegetables—
If you have taken out a contract with a cannery or pickle company—
If you want to investigate the vegetable proposition as a possible source of supplementary income—

YOU NEED AMERICAN PRODUCE GROWER

The *Investment* is just a dollar.

The *Dividends* are many more dollars.

PIN A DOLLAR BILL TO THIS COUPON

Harry W. Walker, Publisher,
American Produce Grower,
53 W. Jackson Blvd., Chicago.

Dear Sir: Here's a dollar for American Produce Grower every month for three years.

Name_____

Address_____

WHAT THE CAMERA SEES

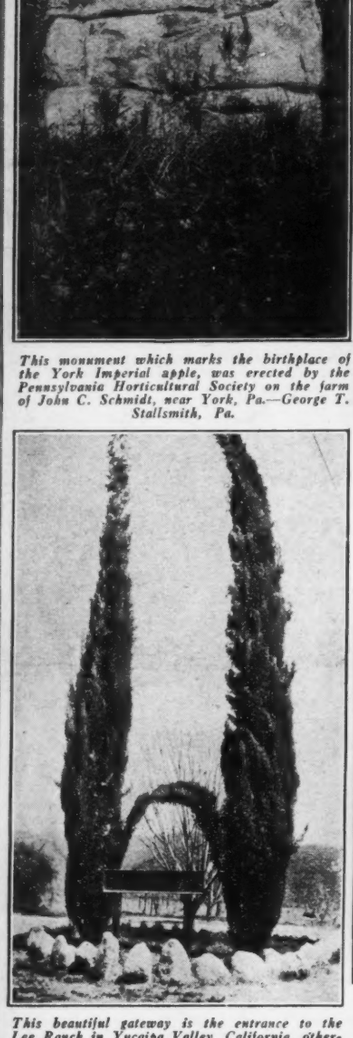
AMERICAN FRUIT GROWER MAGAZINE will pay Five Dollars for the photo selected each month as the PRIZE PHOTO, and will pay One Dollar each for other photos not receiving the prize money but which we are able to use. Send your photo, illustrating anything of interest to the fruit grower, with a short item telling the FACTS about the picture. Address photos to the Editor. If not suitable for our use, your photo will be returned.

This monument which marks the birthplace of the York Imperial apple, was erected by the Pennsylvania Horticultural Society on the farm of John C. Schmidt, near York, Pa.—George T. Stallsmith, Pa.

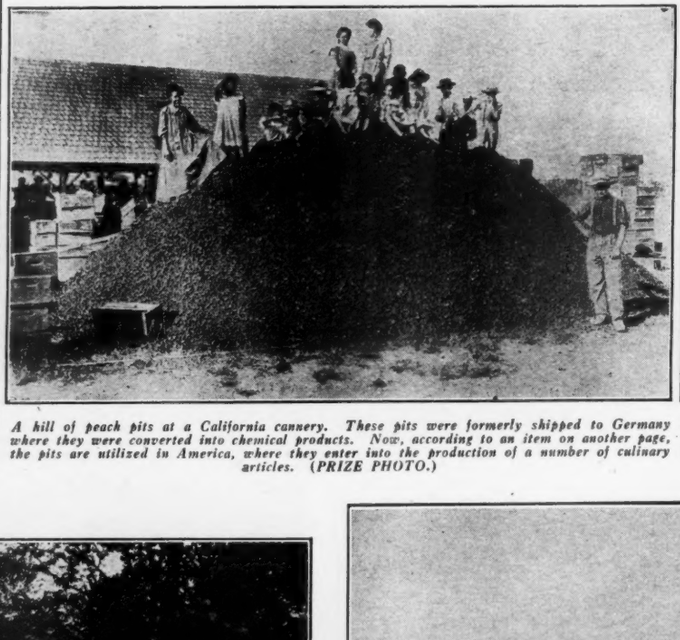
Tractor spraying in the mountain orchards of Governor H. F. Byrd in the Shenandoah Valley of Virginia. The tractor can pull this 300-gallon sprayer in low gear slow enough to keep the rig in continuous motion and still secure adequate spray coverage. The manager of the orchard has thus been able to get critical sprays on the trees regardless of wet soil in the early spring.

This famous orange tree in the "Fruitlands" nursery, Augusta, Ga., is the ancestor of most of the "Trifoliate" orange stocks used in America, according to the story on another page. —H. E. Zimmerman, Ill.

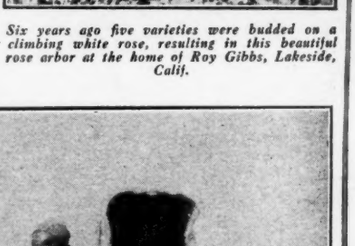
Two Sweet Bough apple trees, planted close and grafted together at the age of five years, are responsible for this "two-legged" tree. Now, at 30 years of age, it bears about 5 barrels of apples every year on the farm of R. L. Palmer, Welsford, N. S.—Mrs. Amy Jones, Nova Scotia.



This beautiful gateway is the entrance to the Lee Ranch in Yucaipa Valley, California, otherwise known as Valley View Ranch. A variety of fruits, chiefly grapes and cherries, is grown. —B. Janieth Knight, Calif.



A hill of peach pits at a California cannery. These pits were formerly shipped to Germany where they were converted into chemical products. Now, according to an item on another page, the pits are utilized in America, where they enter into the production of a number of culinary articles. (PRIZE PHOTO.)



Six years ago five varieties were budded on a climbing white rose, resulting in this beautiful rose arbor at the home of Roy Gibbs, Lakeside, Calif.

The gate leading to the late Luther Burbank's Goldridge Experiment Farm, which he used as a "lining-out" storage for his completed experiments. The opening of this gate, which, during the life of the great experimentor, was kept closed, disclosed a wealth of new varieties of fruits. (Story in this issue.)

The dates of Siwa, an oasis 400 miles west of Cairo and 200 miles south of the Mediterranean, are considered among the finest of the Near East. The picture shows a "grading scene." The "packing" method is equally primitive,—the dates being stamped into baskets by the bare feet of the natives.—Paul S. McElroy, Mass.